ORDER NO. MD9404026C2

Service Manual

Portable Stereo CD System

Radio Cassette

RX-DS15

COMPACT disc DIGITAL AUDIO

MASH* multi-stage noise shaping

Colour

(K) . . . Black Type
(W). . . White Type

Area

Suffix for Model No.	Area	Colour
(E)	Europe	(K, W)
(EB)	Great Britain	(K)
(EG)	Germany and Italy	

* MASH is a trademark of NTT.

TAPE DECK : SG-20 MECHANISM SERIES
TRAVERSE DECK : RAE0113Z MECHANISM SERIES

SPECIFICATIONS\ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ
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Panasonic

■ SPECIFICATIONS

■ Radio

Frequency range	
FM	87.5 – 108 MHz
LW	148.5 – 285 kHz
MW	520 – 1610 kHz
Intermediate frequency	
FM	10.7 MHz
AM	459 kHz
Sensitivity	
FM	11.5 dB/50 mW (– 3 dB limit sens.)
LW	58 dB/m/50mW
MW	52 dB/m/50mW

■ CD Player

Sampling frequency	44.1 kHz
Decoding	16 bit linear
Beam source	Semiconductor laser (wavelength 780nm)
No. of channels	2 channel, stereo
Wow and flutter	Less than possible measurement data
D/A converter	MASH (1 bit DAC)

■ Tape Recorder

Track system	4 track, 2 channel, stereo
Recording system	AC bias
Erasing system	Multi pole magnet
Monitor system	Variable sound monitor
Frequency range	
Normal	50 – 14000 Hz

■ General

Power requirement	
AC	230 – 240V, 50Hz Power consumption; 40W
Battery	12V (8 R20/LR20, UM-1 batteries)
Speakers	10 cm x 2
Jacks	
Input	MIC: 5 mV/(200 – 600Ω)
Output	Headphones: 32Ω
Dimensions (W x H xD)	489 x 170 x 252mm
Weight	3.7 kg without batteries

Note :
Specifications are subject to change without notice
Weight and dimensions are approximate.

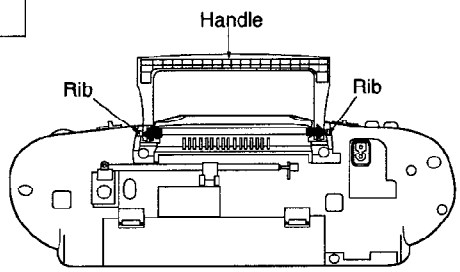
■ DISASSEMBLY INSTRUCTIONS

Warning : This product uses a laser diode. Refer to caution statements on page 2.

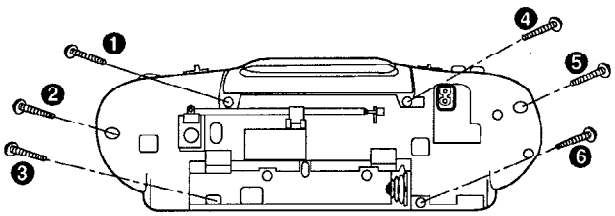
ACHTUNG : • Die lasereinheit nicht zerlegen.
• Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

Ref. No. 1	Removal of the Handle

Procedure 1



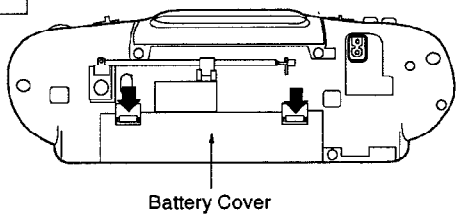
1. Release 2 ribs.
2. Pull out the handle.



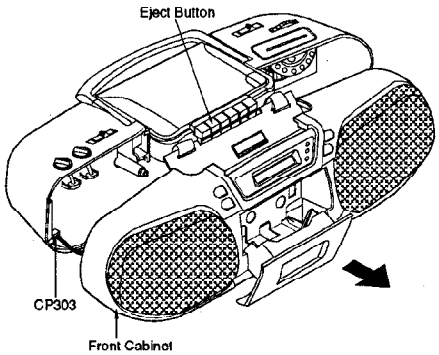
2. Remove 6 screws. (❶ ~ ❻)

Ref. No. 2	Removal of the Front Cabinet

Procedure 2



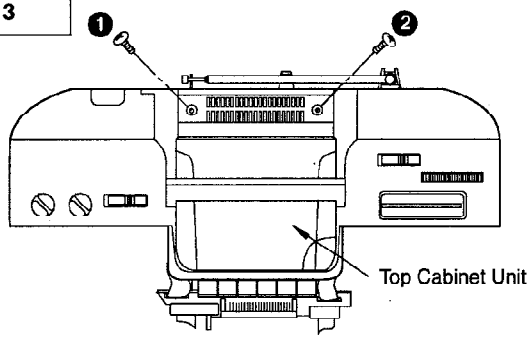
1. Remove the battery cover.



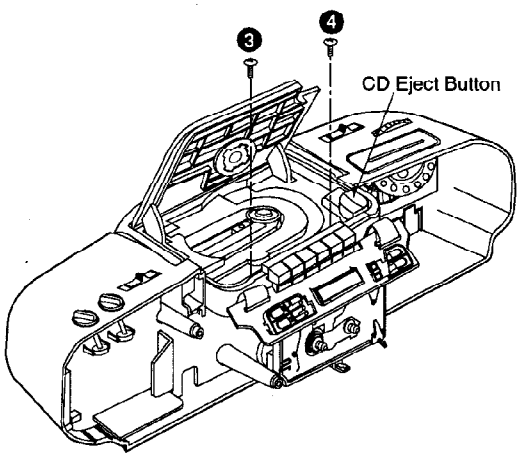
3. Press the eject button.
4. Remove the front cabinet in the direction of arrow.
5. Remove 1 connector. (CP303)

Ref. No. 3	Removal of the Top Cabinet Unit

Procedure 2 → 3

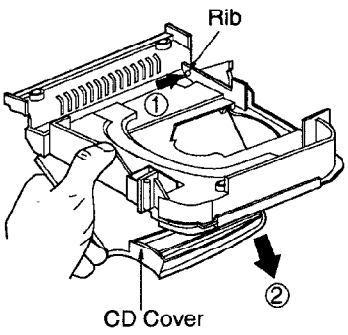


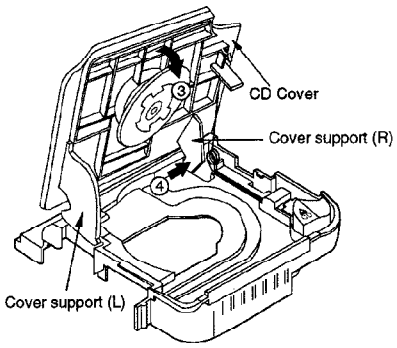
1. Remove 2 screws. (❶ & ❷)
2. Press the CD eject button.
3. Remove 2 screws. (❸ & ❹)
4. Remove the Top Cabinet Unit.



Ref. No. 4 — **Removal of the CD Cover**

Procedure 2 → 3 → 4

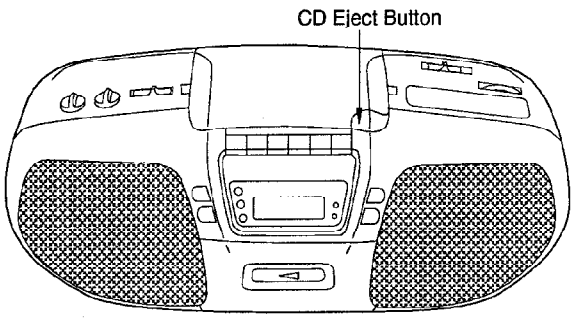


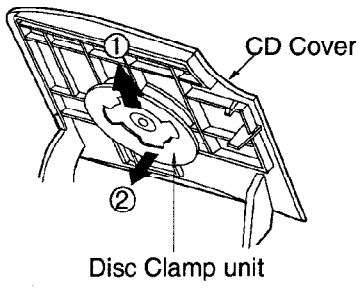


1. Hold the CD cover in half-open position.
2. Release the rib in direction of arrow ①.
3. Pull out cover support (L) in the direction of arrow ②.
4. Hold down the CD cover in the direction of arrow ③ .(Half-open)
5. Release the cover support (R) in the direction of arrow ④.
6. Pull out the CD cover.

Ref. No. 5 — **Removal of the Disc Clamp Unit**

Procedure 5

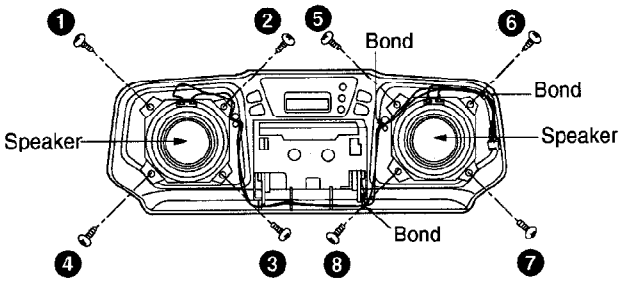




1. Press the CD eject button.
2. Remove the disc clamp unit in the direction of arrow ① follow by ②.

Ref. No. 6 — **Removal of the Speakers**

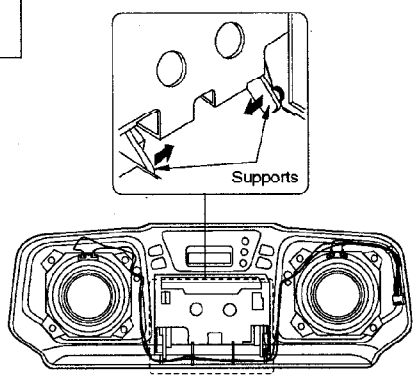
Procedure 2 → 6



1. Remove 8 screws. (❶ ~ ❽)
2. Remove black bonds.

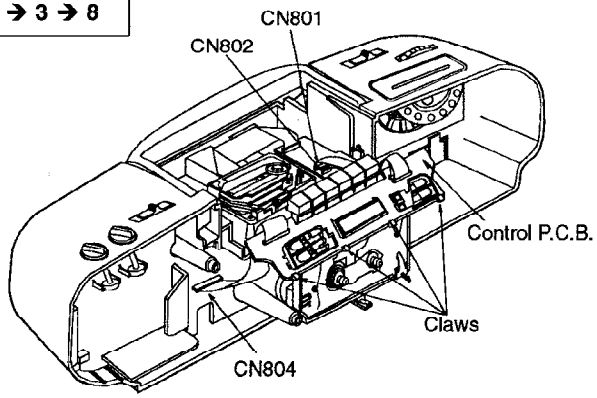
Ref. No. 7 — **Removal of the Cassette Compartment**

Procedure 2 → 7



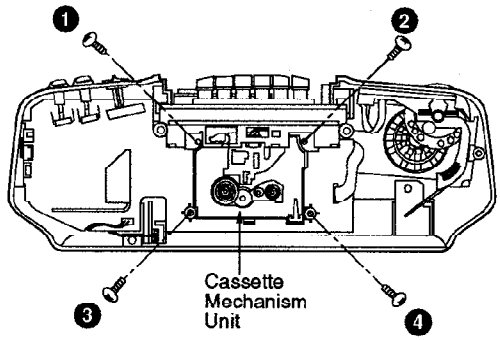
• Release the supports and pull out the compartment.

Ref. No. 8	Removal of the Control P.C.B.
Procedure 2 → 3 → 8	



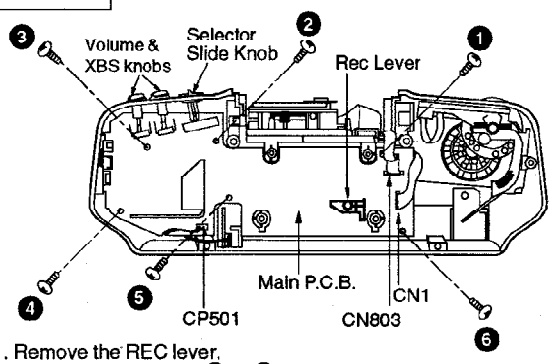
1. Remove 3 connectors. (CN801, CN802,CN804)
2. Release 4 claws.

Ref. No. 9	Removal of the Mechanism Unit
Procedure 2 → 3 → 8 → 9	

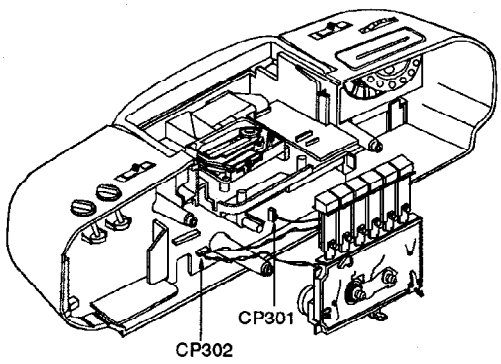


1. Remove 4 screws. (❶ ~ ❹)

Ref. No. 10	Removal of the Main P.C.B.
Procedure 2 → 3 → 8 → 9 → 10	

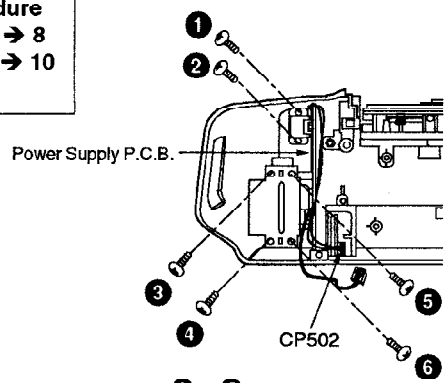


1. Remove the REC lever.
2. Remove 6 screws. (❶ ~ ❻)
3. Remove 3 connectors. (CP501, CN1 & CN803)
4. Pull out the Volume & XBS knobs and Selector slide knob.



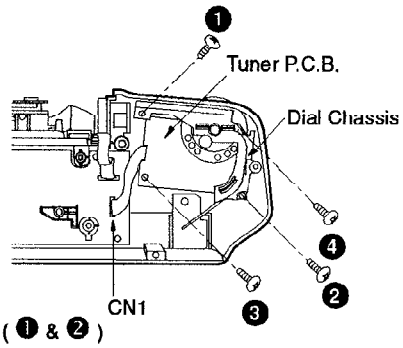
2. Remove 2 connectors. (CP301 & CP302)

Ref. No. 11	Removal of the Power Supply P.C.B.
Procedure 2 → 3 → 8 → 9 → 10 → 11	



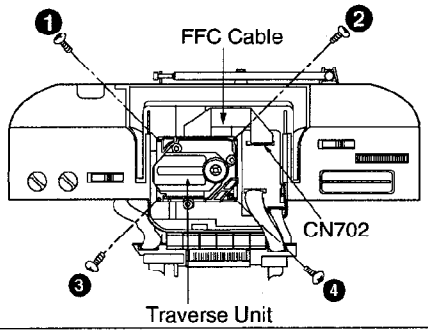
1. Remove 6 screws. (❶ ~ ❻)
2. Remove 1 connector. (CP502)

Ref. No. 12	Removal of the Dial Chassis & Tuner P.C.B.
Procedure 2 → 12	



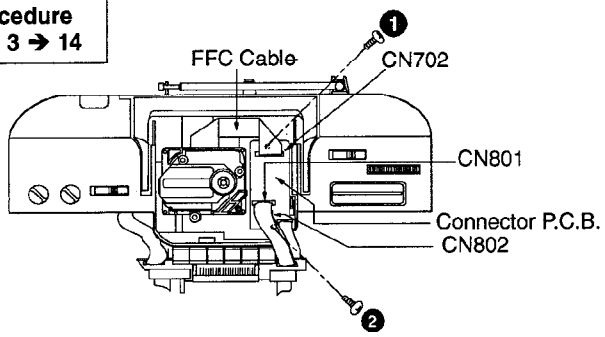
1. Remove 2 screws. (❶ & ❷)
2. Remove the dial chassis.
3. Remove 2 screws. (❸ & ❹)
4. Remove 1 connector. (CN1)
5. Remove the Tuner P.C.B.

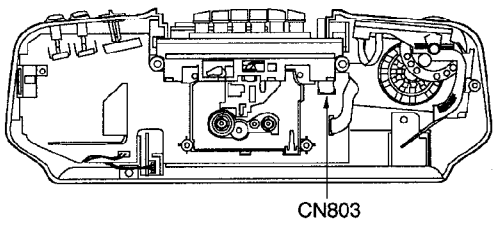
Ref. No. 13	Removal of the Traverse Unit
Procedure 2 → 3 → 13	



1. Remove 4 screws (❶ ~ ❹).
2. Remove FFC cable from the connector CN702 (Connector P.C.B.).

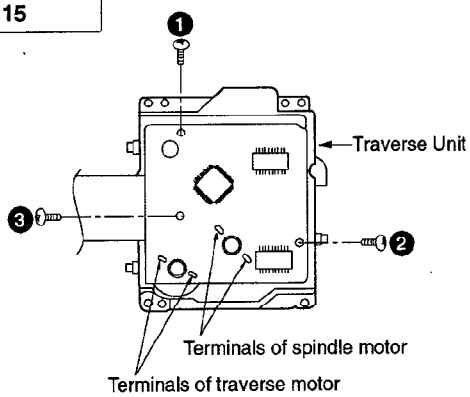
Ref. No. 14	Removal of the Connector P.C.B.
Procedure 2 → 3 → 14	





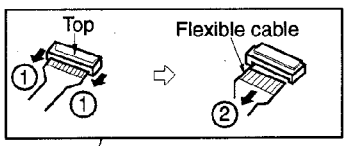
1. Remove 2 screws. (❶ & ❷)
2. Remove FFC cable from the connector CN702 (Connector P.C.B.).
3. Remove 3 connectors. (CN801, CN802, CN803)

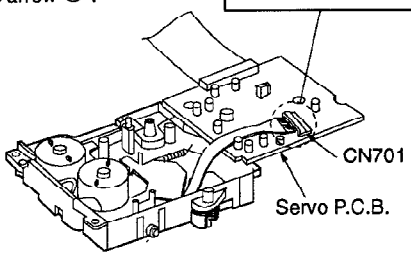
Ref. No. 15	Removal of the Servo P.C.B.
Procedure 2 → 3 → 13 → 15	



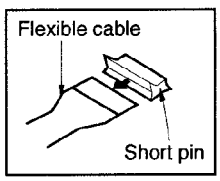
1. Remove 3 screws. (❶ ~ ❸)
2. Desolder 2 terminals of spindle motor.
3. Desolder 2 terminals of traverse motor.
4. Remove the flexible cable from CN701.

• Removal of the flexible cable
Push the top of the connector in the direction of the arrow ① , and then pull out the flexible cable in the direction of the arrow ② .

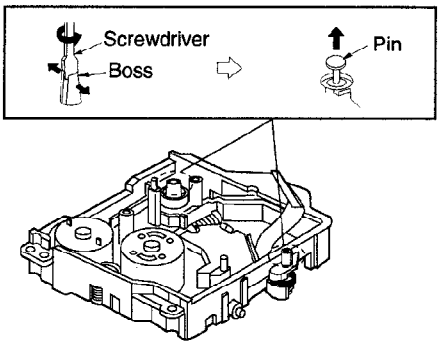


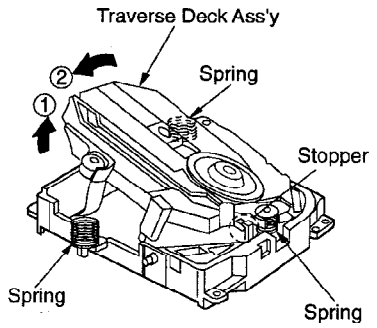


Note :
Insert a short pin into the flexible cable for traverse unit.



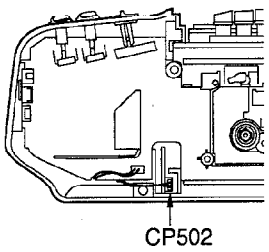
Ref. No. 16	Removal of the Traverse Deck Ass'y
Procedure 2 → 3 → 13 →15 →16	

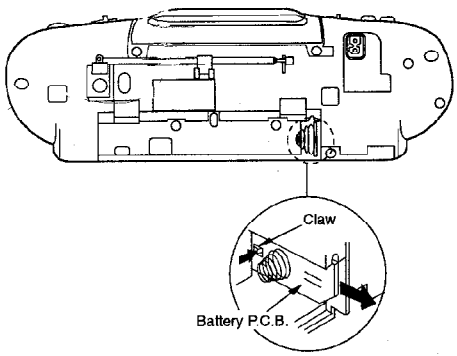




1. Widen 2 bosses by using a flat tip screwdriver and remove 2 pins
2. Remove the Traverse Deck Ass'y in direction of arrow ① follow by ② .

Ref. No. 17	Removal of the Battery P.C.B.
Procedure 2 → 17	

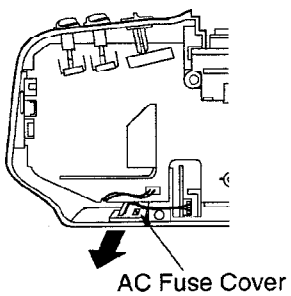




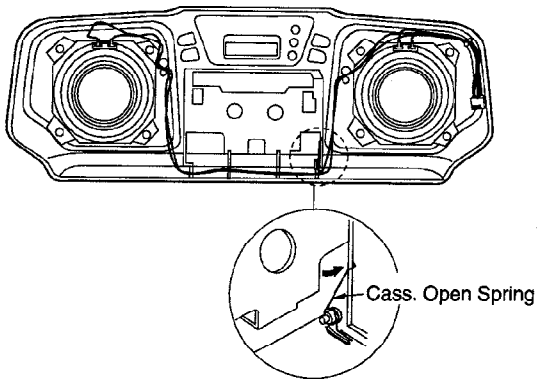
1. Remove 1 connector. (CP502)
2. Release 1 claw.
3. Pull out the battery P.C.B.

Ref. No. 18	Removal of the AC Fuse Cover
Procedure 2 → 18	

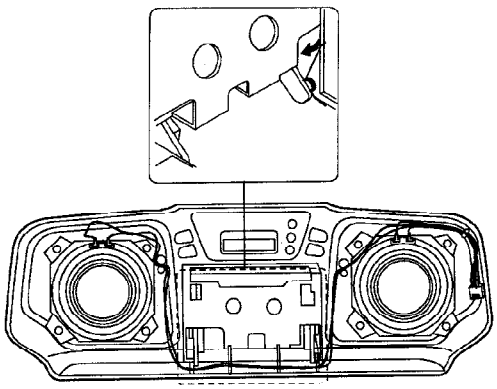
- Pull out the AC Fuse Cover in the direction of arrow.



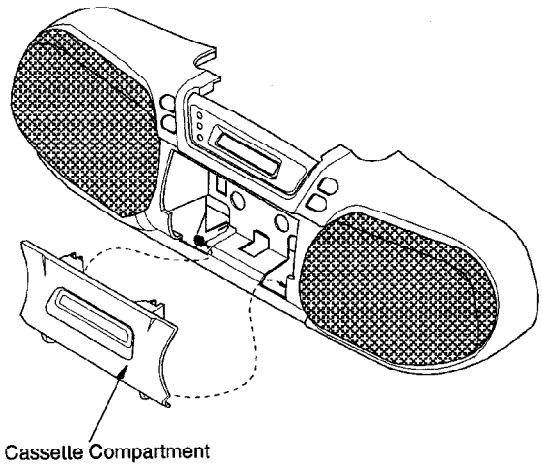
■ INSTALLING CASSETTE COMPARTMENT



1. Install the cass. open spring as shown in above diagram.

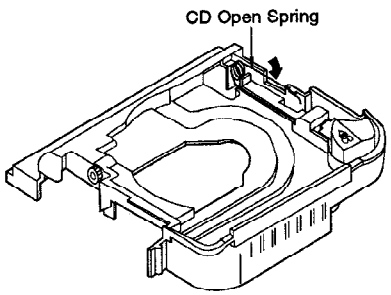


3. Release the spring.

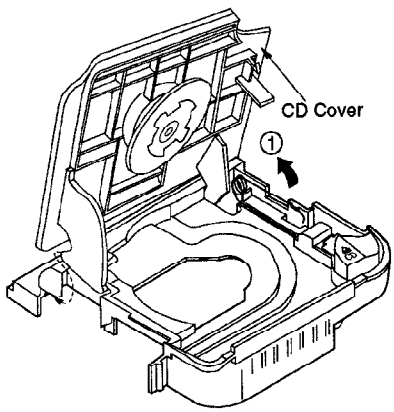


2. Fix the cassette compartment to front cabinet.

■ INSTALLING CD COVER

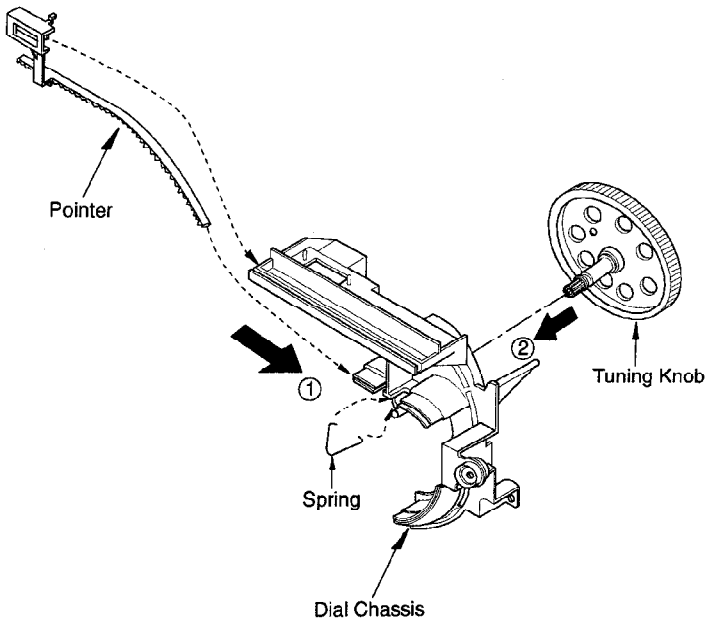


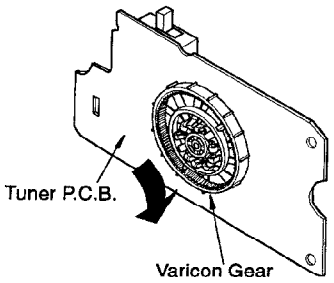
1. Install the CD open spring as shown in above diagram



2. Install the CD cover onto the top cabinet.
   Note : When installing the CD cover, make sure the CD cover is in half open position.
3. Release the spring in the direction of arrow ① .

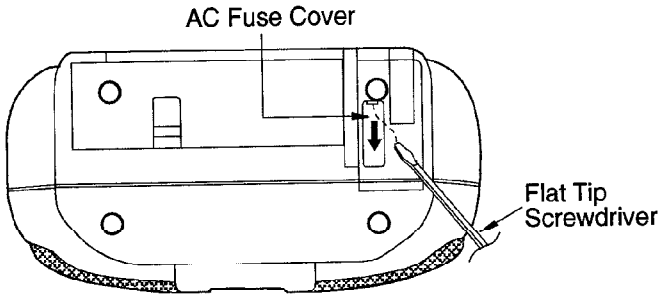
■ DIAL POINTER SETTING





1. Install the pointer to the dial chassis.
2. Move the pointer in the direction of arrow ① until the end.
3. Install the tuning knob in the direction of arrow ② .
4. Secure the tuning knob with the spring.
5. Fully rotate the varicon gear in the clockwise direction.
6. Install the tuner P.C.B. to the back cabinet first follow by the dial chassis.

■ FUSE REPLACEMENT



Bottom of the unit

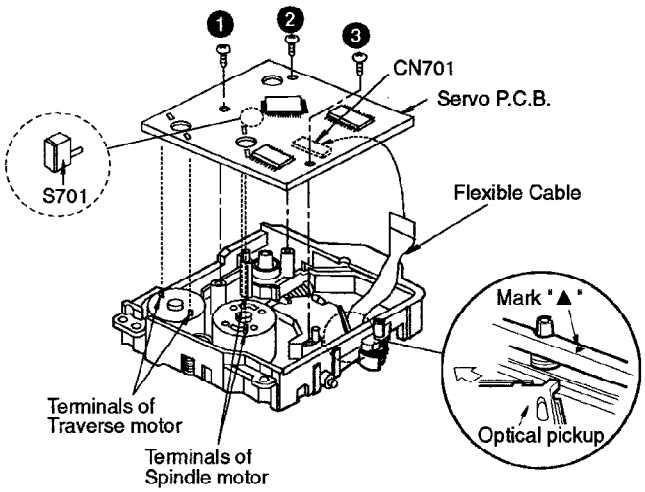
1. Open the AC fuse cover in the direction of arrow using a flat tip screwdriver.
2. Replace the fuse inside.

CAUTION
After fuse replacement, be sure to restore the fuse cover.

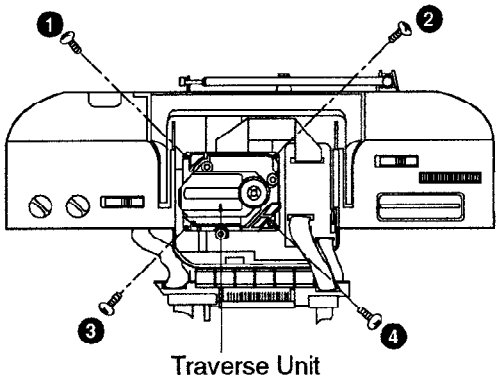
■ INSTALLING SERVO P.C.B.

1. Before installing the servo P.C.B., move the optical pickup toward the outer edge from the mark "▲". (Otherwise, the rest switch (S701) mounted on the servo P.C.B may be damaged.)
2. Connect the flexible cable to the connector (CN701).
3. Install the servo P.C.B. in the traverse deck ass'y with the 3 screws (❶ ~ ❸).
4. Solder the 2 terminals of the traverse motor and the 2 terminals of the spindle motor.

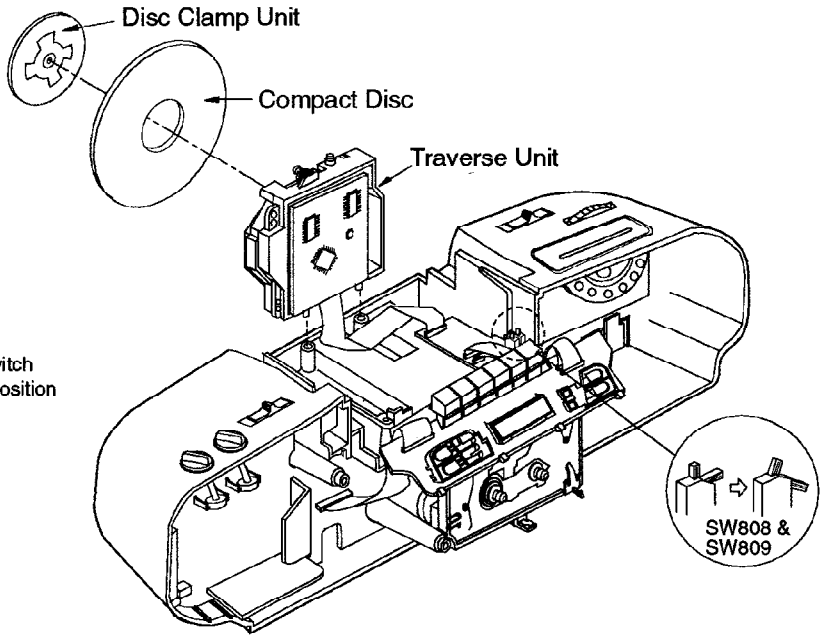
Note : Connect the flexible cable to the connector (CN701) firmly.
Tighten the screws before soldering the terminals.



■ HOW TO CHECK THE TRAVERSE UNIT



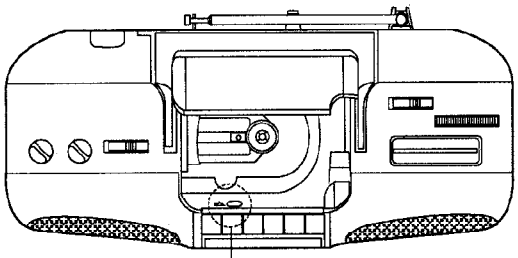
1. Remove the top cabinet unit. (Refer to disassembly instructions, Ref No. 3)
2. Remove 4 screws. (❶ ~ ❹)



3. Set up the traverse unit as shown in diagram.
4. Install the compact disc and disc clamp unit.

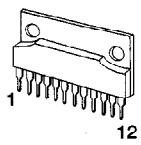
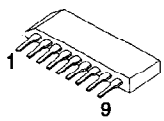
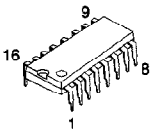
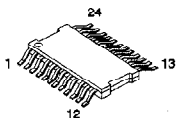
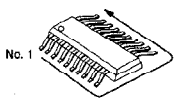
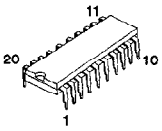
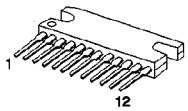
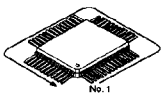
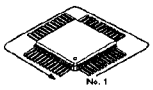
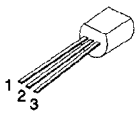
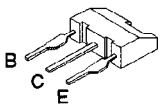
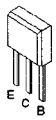
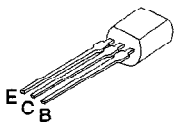
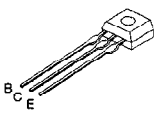
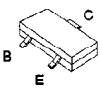
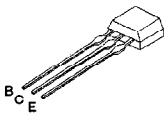
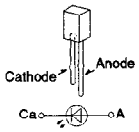
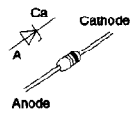
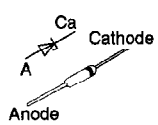
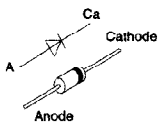
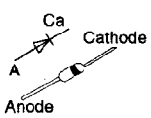
Note : Before perform checking, make sure the switch SW808 and SW809 are switched to "ON" position (as shown in diagram).

■ WHAT TO DO WHEN THE TAPE IS ENTANGLED

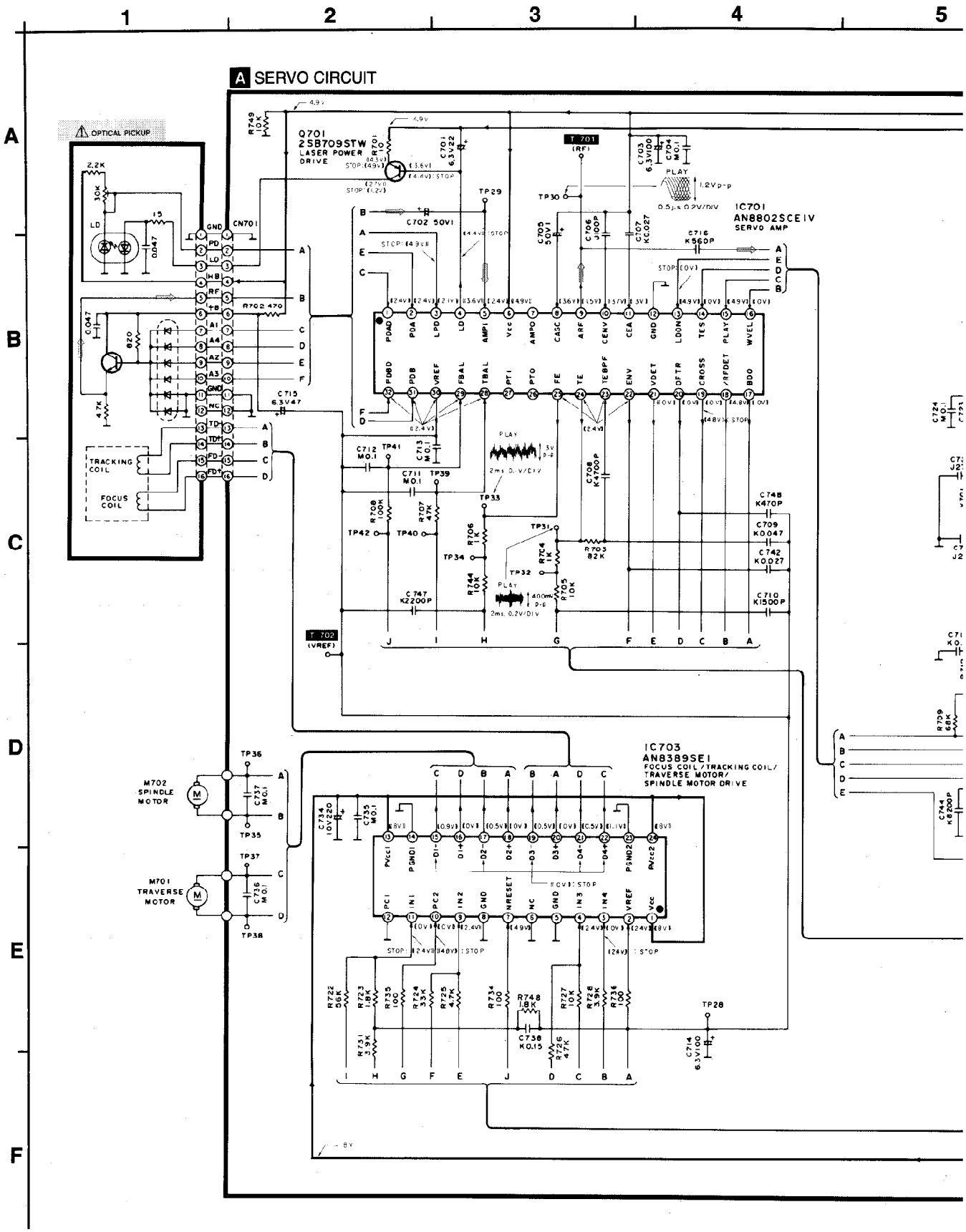


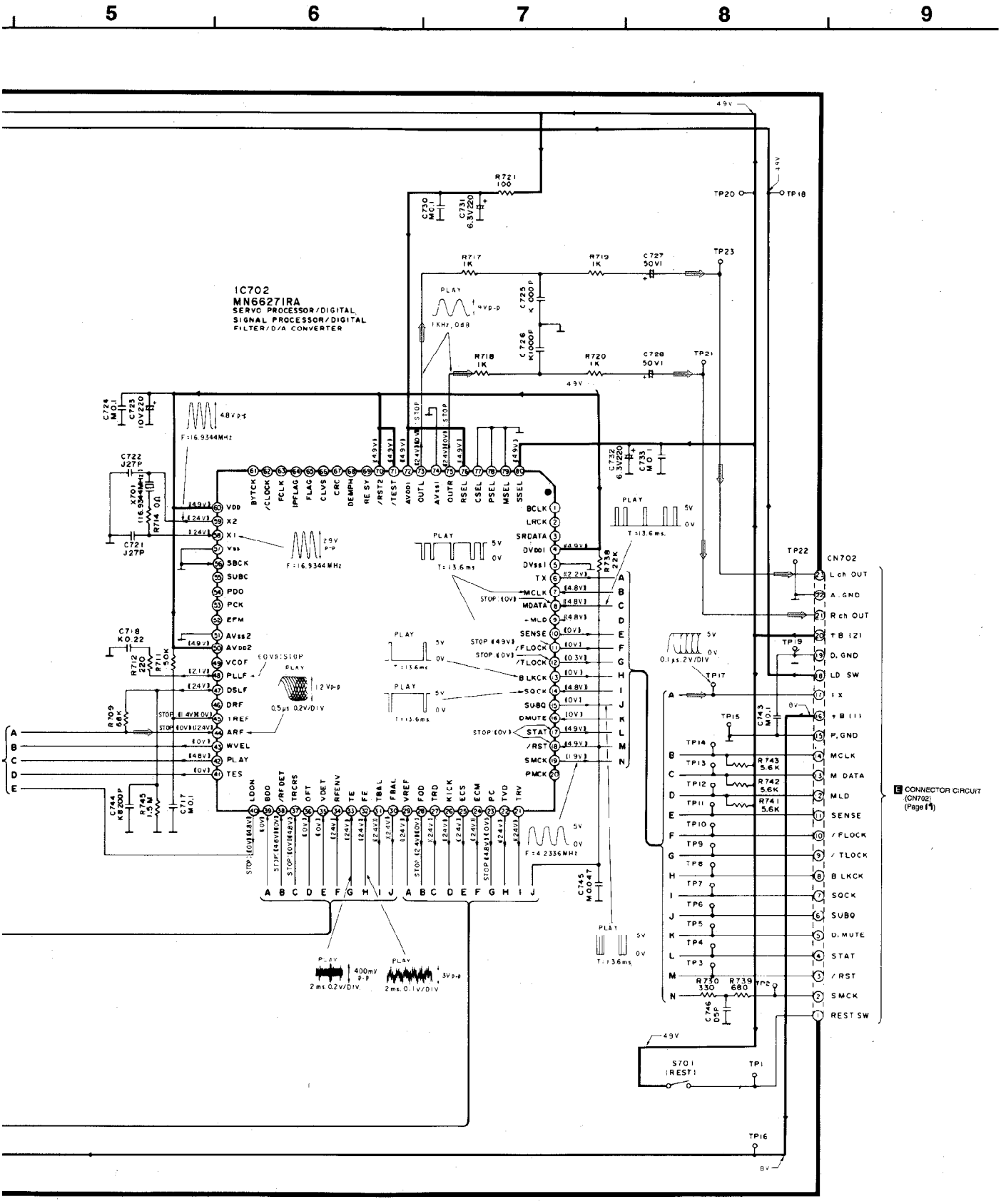
When the tape is caught in the pitch roller, etc. Release the tape by turning the flywheel on the motor with the screwdriver in the direction of arrow.

■ TERMINAL GUIDE OF ICs, TRANSISTORS & DIODES

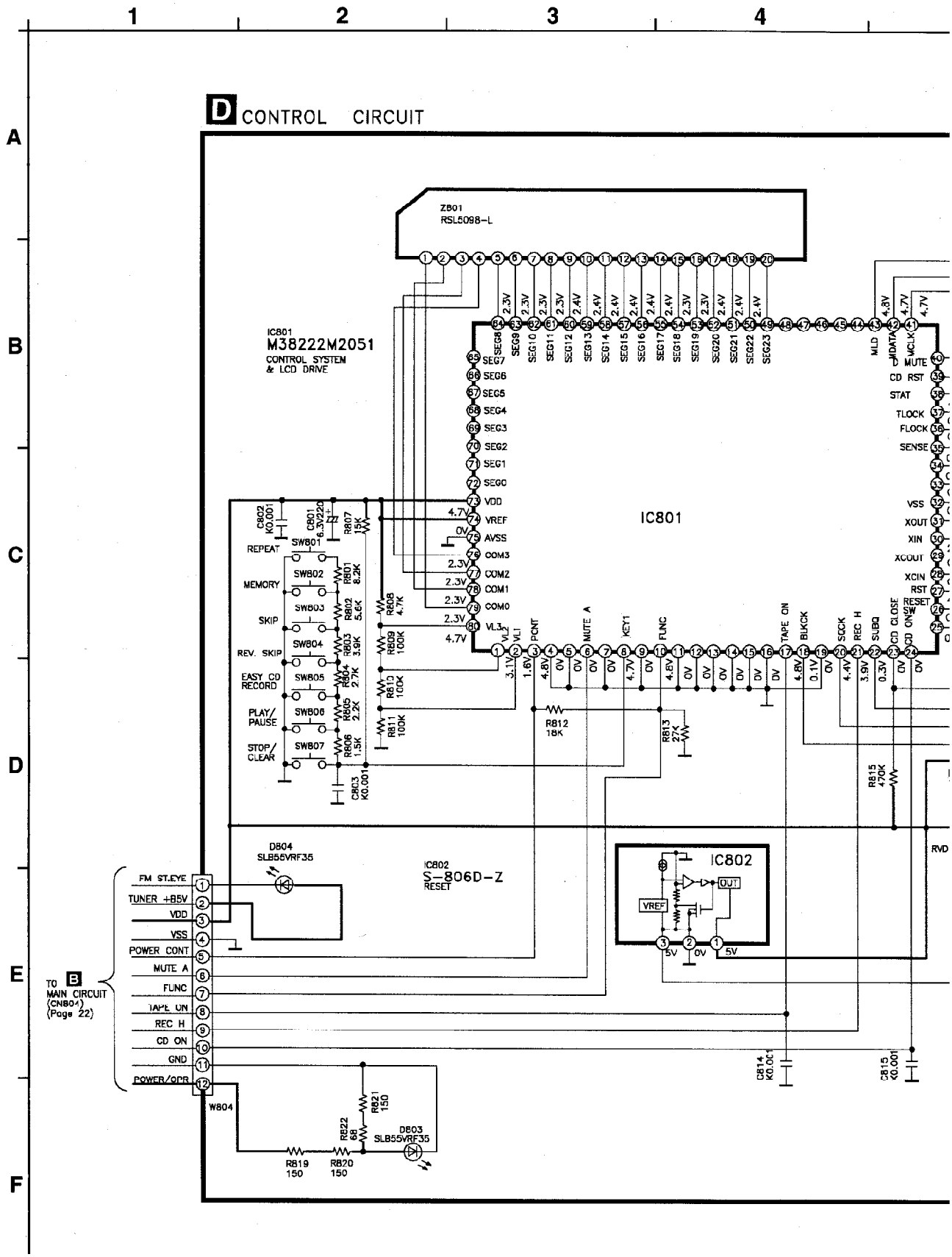
AN7135 	AN7205 	AN7317 	AN8389SE1 	AN8802SCE1V 32 Pin 	BA1442 
BA3936 	M38222M2051 80 Pin 	MN66271RA 80 Pin 	S-806D-Z 	2SC4408TPE6 	BN1A4MTA 
2SC1684RTA 2SC1684STA 2SC829BTA 		2SC2785FTA 	2SB709S 	2SC1740SRTA 	SLB55VRF35 
MA4056N-MTA 	RVDMTZ16BTA RVDMTZ5R6BTA RVDMTZ6R8BTA 		1N5402BM21 	RVD1SS133TA 	

■ SCHEMATIC DIAGRAM



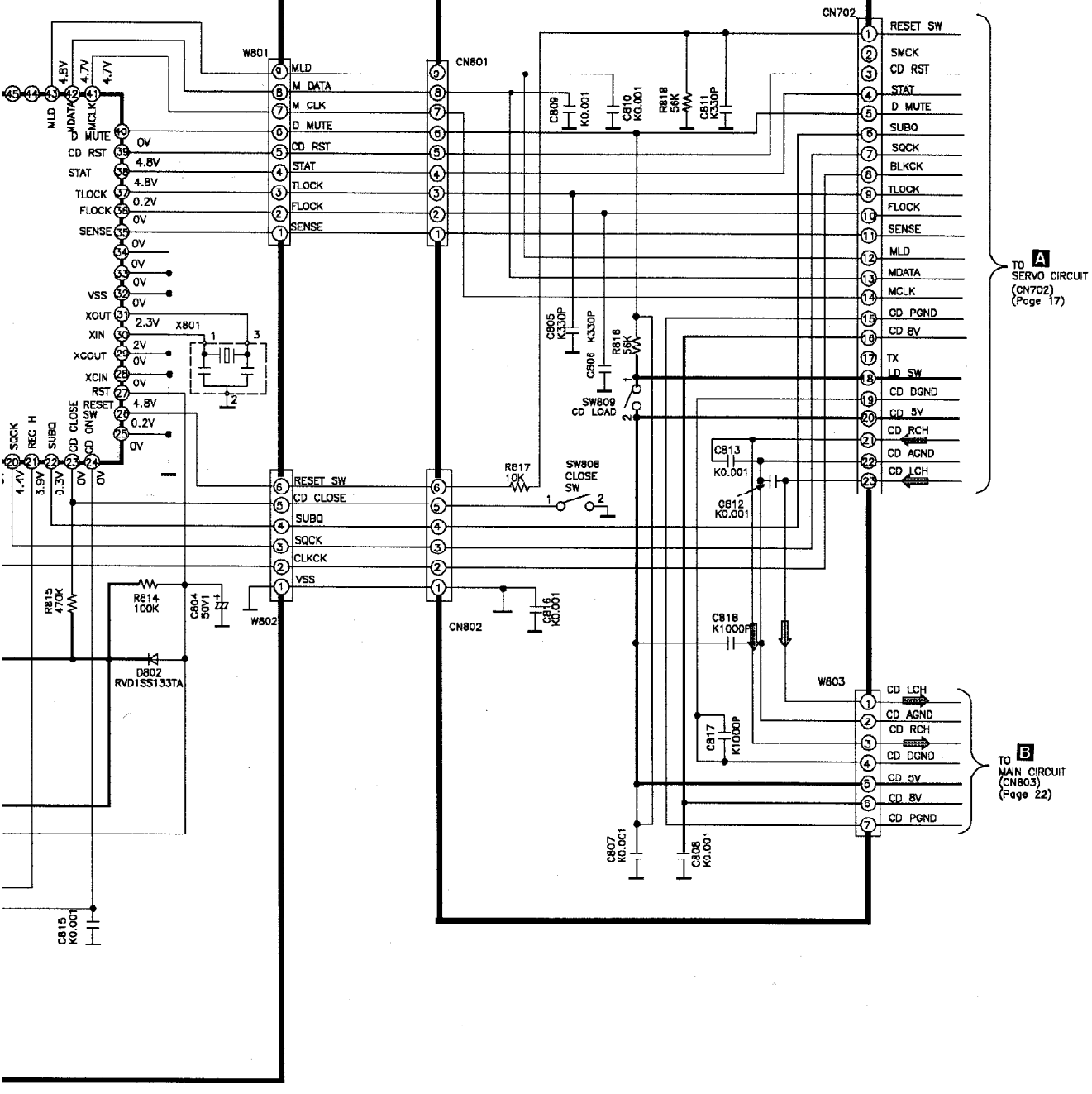

5
6
7
8
9
IC702
MN6627IRA
SERVO PROCESSOR/DIGITAL
SIGNAL PROCESSOR/DIGITAL
FILTER/D/A CONVERTER
CN702
L ch OUT
A. GND
R ch OUT
TB (2)
D. GND
LD SW
I X
+B (1)
P. GND
MCLK
M DATA
MLD
SENSE
/FLOCK
/TLOCK
B LKCK
SQCK
SUBQ
D. MUTE
STAT
/RST
SMCK
REST SW
E CONNECTOR CIRCUIT (CN702) (Page 14)
S701 (REST)

■ SCHEMATIC DIAGRAM

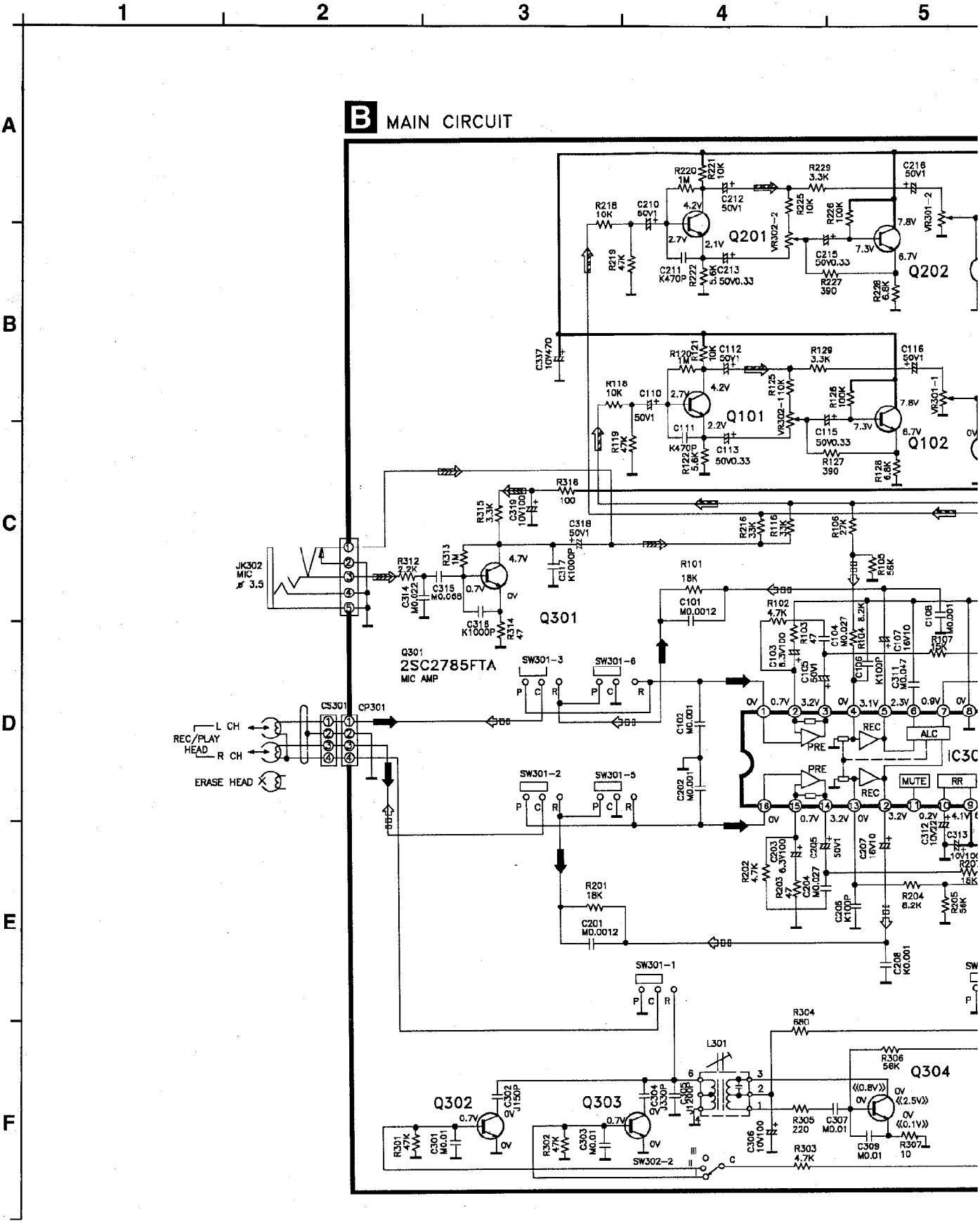


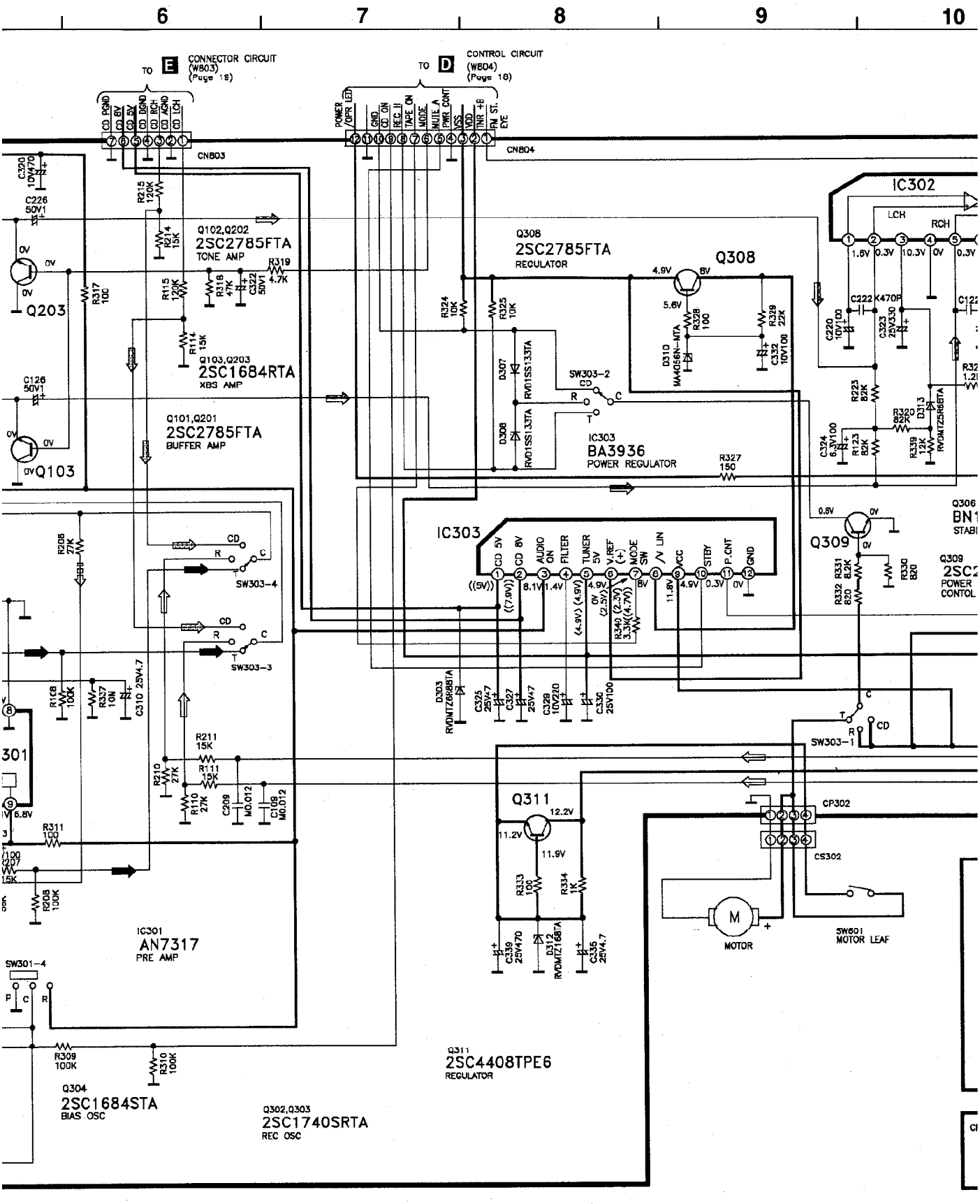
5 6 7 8 9

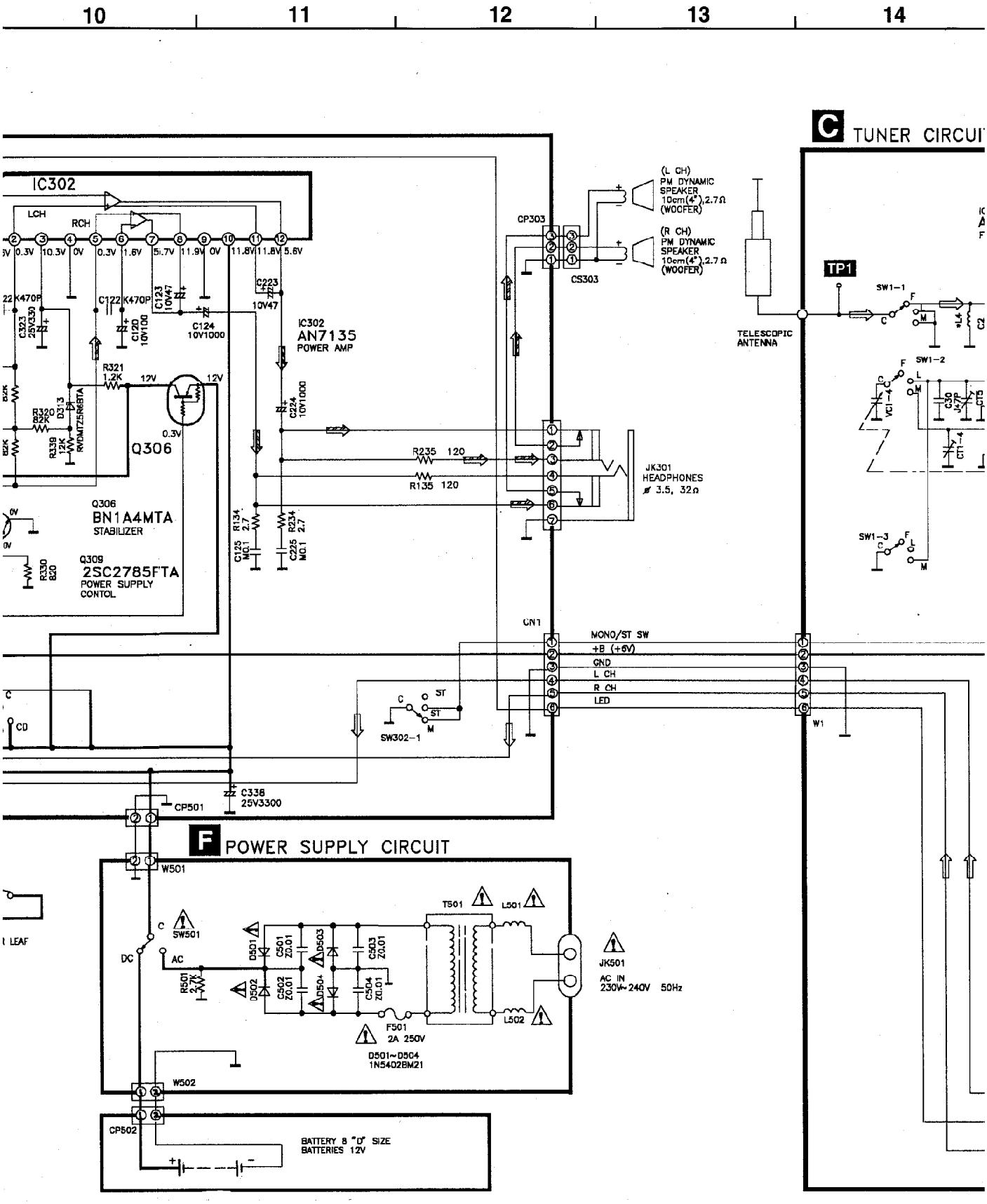
E CONNECTOR CIRCUIT



■ SCHEMATIC DIAGRAM

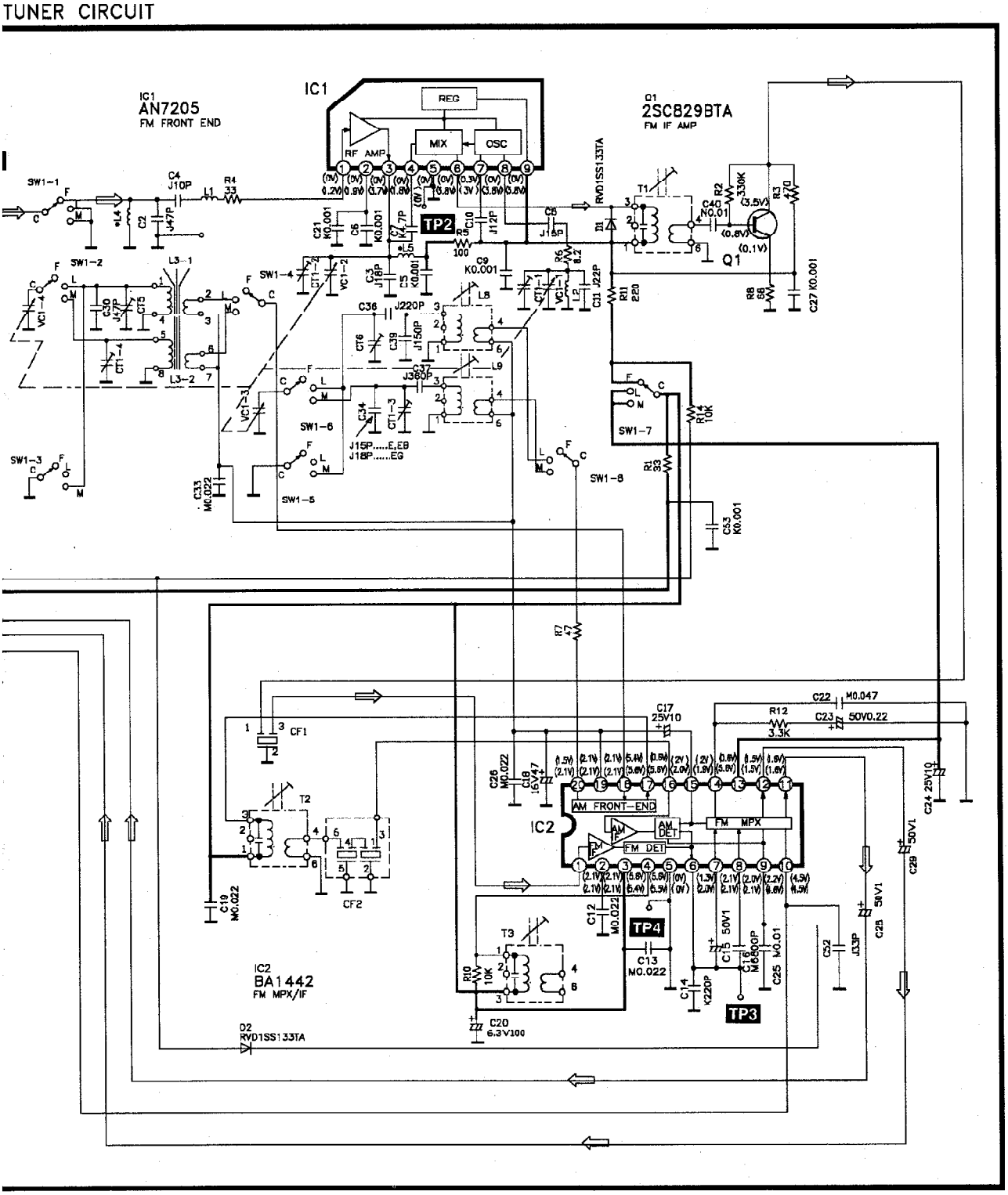



6
7
8
9
10
TO E CONNECTOR CIRCUIT (W803) (Page 18)
TO D CONTROL CIRCUIT (W804) (Page 18)
CN803
CN804
IC302
LCH
RCH
Q102,Q202
2SC2785FTA
TONE AMP
Q203
Q103,Q203
2SC1684RTA
XBS AMP
Q101,Q201
2SC2785FTA
BUFFER AMP
Q103
Q308
2SC2785FTA
REGULATOR
Q308
IC303
BA3936
POWER REGULATOR
SW303-2
SW303-4
SW303-3
SW303-1
IC303
Q309
IC301
AN7317
PRE AMP
SW301-4
Q311
12.2V
11.2V
11.9V
Q311
2SC4408TPE6
REGULATOR
Q304
2SC1684STA
BIAS OSC
Q302,Q303
2SC1740SRTA
REC OSC
CP302
CS302
SW601
MOTOR LEAF
MOTOR
CD 5V
CD 8V
AUDIO ON
FILTER
TUNER 5V
V.REF (+)
MODE SW
V LIN
VCC
STBY
P.CNT
GND


10
11
12
13
14
C TUNER CIRCUI
IC302
LCH
RCH
IC302
AN7135
POWER AMP
Q306
BN1A4MTA
STABILIZER
Q309
2SC2785FTA
POWER SUPPLY
CONTOL
CP303
CS303
(L CH)
PM DYNAMIC
SPEAKER
10cm(4"),2.7Ω
(WOOFER)
(R CH)
PM DYNAMIC
SPEAKER
10cm(4"),2.7Ω
(WOOFER)
TELESCOPIC
ANTENNA
TP1
SW1-1
SW1-2
SW1-3
JK301
HEADPHONES
ø 3.5, 32Ω
R235 120
R135 120
CN1
MONO/ST SW
+B (+6V)
GND
L CH
R CH
LED
W1
SW302-1
CP501
C338
25V3300
F POWER SUPPLY CIRCUIT
W501
SW501
DC
AC
T501
L501
L502
JK501
AC IN
230V~240V 50Hz
F501
2A 250V
D501~D504
1N5402BM21
W502
CP502
BATTERY 8 "D" SIZE
BATTERIES 12V

14 15 16 17 18

TUNER CIRCUIT



■ TERMINAL FUNCTION OF IC'S

• IC702 (MN66271RA)

Pin No.	Mark	I/O	Function
1	BCLK	O	Serial bit clock terminal (Not used, open)
2	LRCK	O	L/R discriminating signal (Not used, open)
3	SRDATA	O	Serial data (Not used, open)
4	DVDD1	I	Power supply (digital circuit) terminal
5	DVSS1	—	GND (digital circuit) terminal
6	TX	O	Digital audio interface signal
7	MCLK	I	Microprocessor command clock signal
8	MDATA	I	Microprocessor command data signal
9	MLD	I	Microprocessor command load signal
10	SENSE	O	Sense signal output (OFT,FESL,MAGEND,NAJEND,POSAD,SFG)
11	/FLOCK	O	Optical servo condition(focus)("L" : lead-in)
12	/TLOCK	O	Optical servo condition(tracking)("L" : lead-in)
13	BLKCK	O	Sub-code block clock (f=75Hz)
14	SQCK	I	External clock signal input for sub-code Q register
15	SUBQ	O	Sub-code Q code output
16	DMUTE	I	Muting input ("H" : mute)
17	STAT	O	Status signal output (CRC,CUE,CLVS,TTSTVP,FCLV,SQCK)
18	/RST	I	Reset input
19	SMCK	O	1/2-divided clock signal of crystal oscillating at MSEL = "H" (fSMCK=8.4672MHz) 1/4-divided clock signal of crystal oscillating at MSEL="L" (fSMCK=4.2336MHz)
20	PMCK	O	1/192-divided clock signal of crystal oscillating (fPMCK=88.2kHz) (Not used, open)
21	TRV	O	Traverse servo control output
22	TVD	O	Traverse drive signal output
23	PC	O	Spindle motor ON signal output ("L" : ON)
24	ECM	O	Spindle motor drive signal output (forced mode output)
25	ECS	O	Spindle motor drive signal output (servo error signal output)
26	KICK	O	Kick pulse output
27	TRD	O	Tracking drive output
28	FOD	O	Focus drive output
29	VREF	I	D/A (drive) output (TVD,ECS,TRD,FOD, FBAL,TBAL) Reference voltage input.
30	FBAL	O	Focus balance adjustment output (Not used,open)

Pin No.	Mark	I/O	Function
31	TBAL	O	Tracking balance adjustment output
32	FE	I	Focus error signal input (analog input)
33	TE	I	Tracking error signal input (analog input)
34	RFENV	I	RF envelope signal input
35	VDET	I	Vibration detection signal input ("H" : detection)
36	OFT	I	Off-track signal input ("H" : off track)
37	TRCRS	I	Track cross signal input
38	/RFDET	I	RF detection signal input ("L" : detection)
39	BDO	I	Dropout signal input ("H" : Dropout)
40	LDON	O	Laser on signal output ("H" : ON)
41	TES	O	Tracking error shunt signal output ("H" : shunt)
42	PLAY	O	Play signal out ("H" : PLAY)
43	WVEL	O	Double speed status signal output ("H" : DS)
44	ARF	I	RF signal input
45	IREF	I	Reference current input
46	DRF	I	DSL bias (Not used, open)
47	DSLF	I/O	DSL loop filter
48	PLLF	I/O	PLL loop filter
49	VCOF	I/O	VCO loop filter (Not used, open)
50	AVDD2	I	Power supply input (for analog circuit)
51	AVSS2	—	GND (for analog circuit)
52	EFM	O	EFM signal output (Not used, open)
53	PCK	O	PLL extraction clock ouput (Not used, open) (fPCK=4.321 MHz during normal playback)
54	PDO	O	Phase comparison signal of EFM and PCK signals (Not used, open)
55	SUBC	O	Sub-code serial data output (Not used, open)
56	SBCK	I	Clock input for sub-code serial data (Not used, open)
57	VSS	—	GND
58	X1	I	Crystal oscillating circuit input (f=16.9344MHz)
59	X2	O	Crystal oscillating circuit output (f=16.9344MHz)
60	VDD	I	Power supply input (for oscillating circuit)
61	BYTCK	O	Byte clock output (Not used, open)
62	/CLDCK	O	Sub-code frame clock signal output (fCLDCK=7.35kHz during normal playback)

Pin No.	Mark	I/O	Function
63	FCLK	O	Crystal frame clock signal output (fCLK=7.35kHz, double=14.7kHz)
64	IPFLAG	O	Interpolation flag output ("H" : interpolation) (Not used, open)
65	FLAG	O	Flag output (Not used, open)
66	CLVS	O	Spindle servo phase synchronizing signal output ("H" : CLV, "L" : rough servo) (Not used, open)
67	CRC	O	Sub-code CRC checked output ("H" : OK, "L" : NG) (Not used, open)
68	DEMPH	O	De-emphasis ON signal output ("H" : ON) (Not used, open)
69	RESY	O	Frame resynchronizing signal output (Not used, open)
70	/RST2	I	Reset input through MASH circuit ("L" : Reset)
71	/TEST	I	Test input
72	AVDD1	I	Power supply input (for analog circuit)

Pin No.	Mark	I/O	Function
73	OUTL	O	Left channel audio signal output
74	AVSS1	—	GND
75	OUTR	O	Right channel audio signal output
76	RSEL	I	RF signal polarity assignment input (at "H" level, RSEL="H", at "L" level, RESL="L")
77	CSEL	I	Crystal oscillating frequency designation input "L" : 16.9344MHz "H" : 33.8688MHz
78	PSEL	I	Test input (normally "L") (Not used, open)
79	MSEL	I	Output frequency switching for SMCK terminal "H" : SMCK=8.4672MHz "L" : SMCK=4.2336MHz (Not used, open)
80	SSEL	I	Output mode switching of SUBQ terminal ("H" : Q code buffer mode)

• IC701 (AN8802SCE1V)

Pin No.	Mark	I/O	Function
1	PDAD	I	PDA channel signal input with delay
2	PDA	I	PDA channel signal input without delay
3	LPD	I	Laser PD connection
4	LD	O	Power supply for LD driving
5	AMPI	I	RF amplifier input
6	VCC	I	Power supply connection
7	AMPO	O	RF amplifier output (Not used, open)
8	CAGC	I	AGC loop filter connection
9	ARF	O	RF AGC output
10	CENV	I	Capacitor connection for RF detection
11	CEA	I	Capacitor connection for HPF amplifier
12	GND	—	Ground connection
13	LDON	I	ON/OFF input of LD APC("H" : ON, "L" : OFF)
14	TES	I	Tracking error shunt signal input
15	PLAY	I	Play signal input ("H" : PLAY)
16	WVEL	I	Double speed ("H" : double, "L" : single)

Pin No.	Mark	I/O	Function
17	BDO	O	Dropout detection control
18	/RFDET	O	RF detection signal ("L" : detection)
19	CROSS	O	Tracking error zero cross output
20	OFTR	O	Off-track detection ("H" : detection)
21	VDET	O	Vibration detection signal output("H" : detection)
22	ENV	O	Envelope output terminal
23	TEBPF	I	Vibration detection signal input
24	TE	O	Tracking error signal output
25	FE	O	Focus error signal output
26	PTO	O	Potentioamplifier inversion input (Not used, open)
27	PTI	I	Potentioamplifier inversion output (Not used, open)
28	TBAL	I	Tracking balance signal input
29	FBAL	I	Focus balance signal input
30	VREF	O	Reference voltage output
31	PDB	I	Photo detection Bch input without delay
32	PDBD	I	Photo detection Bch input with delay

• IC801 (M38222M2051)

Pin No.	Mark	I/O Division	Function
1	VL2	I	LCD bias reference voltage V2
2	VL1	I	LCD bias reference voltage V1
3	PCNT	O	Power control signal output
4	—	—	GND
5	—	—	GND
6	MUTE A	O	AF muting control signal output
7	—	—	GND
8	KEY1	I	Key source input
9	—	—	GND
10	FUNC	O	Mode select control signal output
11 ~ 16	—	—	GND
17	TAPE ON	I	Tape detect signal input
18	BLKCLK	I	CD subcode block clock signal input
19	—	—	GND
20	SQCK	O	CD subcode clock input
21	REC H	I	REC detect signal input
22	SUBQ	I	CD subcode data input
23	CD CLOSE	I	CD close detect switch signal input
24	CD ON	I	CD detect signal input
25	—	—	GND
26	RESET SW	I	Reset SW (S701) signal input
27	RST	I	System reset signal input
28	XC IN	—	GND
29	XC OUT	—	GND
30	XIN	I	Clock input
31	XOUT	O	Clock output

Pin No.	Mark	I/O Division	Function
32	VSS	—	GND
33	—		
34	—		
35	SENSE	I	CD sense signal input
36	FLOCK	I	CD focus lock signal input
37	TLOCK	I	CD tracking signal input
38	STAT	I	CD status signal input
39	CD RST	I	CD reset signal input
40	D MUTE	O	CD muting control signal output
41	MCLK	O	CD signal process IC control signal output
42	MDATA	O	CD signal process IC data output
43	MLD	O	CD signal process IC strove signal output
44 ~ 48	—	—	Not used
49 ~ 64	SEG23 ~ SEG8	O	LCD segment signal output
65 ~ 72	SEG7 ~ SEG0	—	Not used
73	VDD	I	Power supply (+5V)
74	VREF	I	A/D converter reference voltage
75	AVSS	—	GND
76 ~ 79	COM3 ~ COM0	O	LCD common signal output
80	VL3	I	LCD bias reference voltage V3

• IC703 (AN8389SE1)

Pin No.	Mark	I/O	Function
1	VCC	I	Power supply terminal
2	VREF	I	Reference voltage input
3	IN4	I	Motor driver (4) input
4	IN3	I	Motor driver (3) input
5	GND	—	Ground connection
6	NC	—	Ground connection
7	NRESET	I	Reset input
8	GND	—	Ground connection
9	IN2	I	Motor driver (2) input
10	PC2	I	PC2 (power cut) input
11	IN1	I	Motor driver (1) input
12	PC1	I	PC1 (power cut) input (Not used, open)

Pin No.	Mark	I/O	Function
17	PVCC1	I	Power supply (1) for driver
18	PGND1	—	Ground connection (1) for driver
19	D1–	O	Motor driver (1) reverse-action output
20	D1+	O	Motor driver (1) forward-action output
21	D2–	O	Motor driver (2) reverse-action output
22	D2+	O	Motor driver (2) forward-action output
23	D3–	O	Motor driver (3) reverse-action output
24	D3+	O	Motor driver (3) forward-action output
25	D4–	O	Motor driver (4) reverse-action output
26	D4+	O	Motor driver (4) forward-action output
27	PGND2	—	Ground connection (2) for driver
28	PVCC2	I	Power supply (2) for driver

■ ALIGNMENT POINTS

< CD PLAYER SECTION >

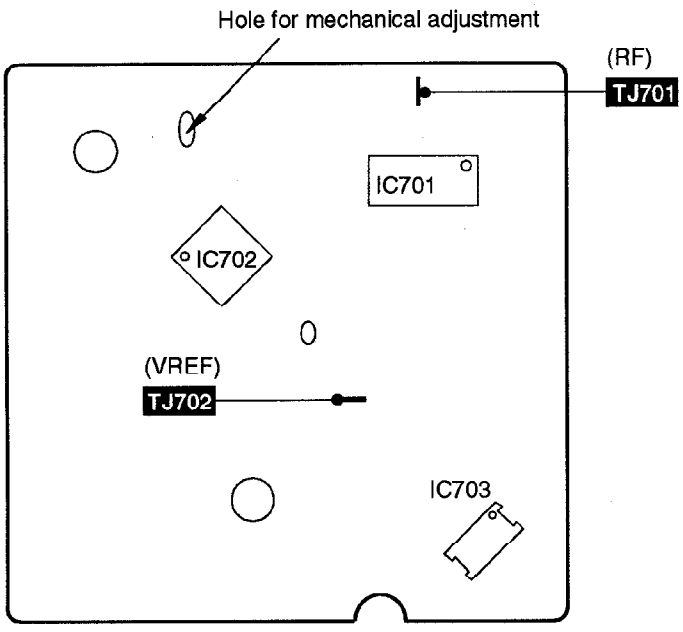


Fig.1

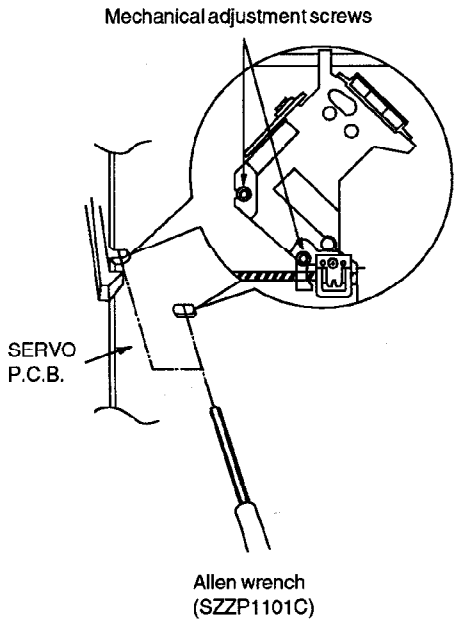


Fig.2

■ MEASUREMENTS AND ADJUSTMENTS

■ TUNER SECTION

• ALIGNMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT	
• Set power source voltage to 230 – 240 V AC. • Set volume control to maximum • Set band switch to MW, LW or FM • Set selector switch to RADIO	• Set XBS switch to minimum • Output of signal generator should be no higher than necessary to obtain an output reading.
Note : No FM STEREO alignment is required due to Tuner IC (BA1442) is used.	

• AM-IF ALIGNMENT

SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONIC VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT (Shown IN Fig. 1)	REMARKS
CONNECTIONS	FREQUENCY				
Fashion a loop of several turns of wire and radiate a signal into the loop ant. of receiver.	459 kHz 30 % Mod. at 400 Hz	Point of non-interference.(on/ about600kHz)	Headphone Jack (32Ω) (Fabicate the plug as shown in Fig.2 and then connect the lead wires of the plug to the measuring instrument.)	T2(AM IFT)	Adjust for maximum output.

• MW-RF ALIGNMENT

SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONIC VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT (Shown in Fig. 1)	REMARKS
CONNECTIONS	FREQUENCY				
"	511 kHz.	Tuning capacitor fully closed.	"	L9 (MW OSC Coil)	Adjust for maximum output.
"	1650 kHz	Tuning capacitor fully opened.	"	CT1-4 (MW OSC Trimmer)	Adjust for maximum output.
"	550 kHz	Tune to signal	"	[*1] L3-2 (MW ANT Coil)	Adjust for maximum output. Adjust L3-2 by moving coil bobbin along ferrite core.
"	1500 kHz	"	"	CT1-3 (MW ANT Trimmer)	Adjust for maximum output.
[*1] Fix antenna coil with wax after completing alignment.					

• LW-RF ALIGNMENT

SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONIC VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT (Shown in Fig. 1)	REMARKS
CONNECTIONS	FREQUENCY				
"	136 kHz.	Tuning capacitor fully closed.	"	L8 (LW OSC Coil)	Adjust for maximum output.
"	297 kHz	Tuning capacitor fully opened.	"	CT6 (LW OSC Trimmer)	Adjust for maximum output.
"	145 kHz	Tune to signal	"	[*1] L3-1 (LW ANT Coil)	Adjust for maximum output. Adjust L3-1 by moving coil bobbin along ferrite core.
"	285 kHz	"	"	CT5 (LW ANT Trimmer)	Adjust for maximum output.
[*1] Fix antenna coil with wax after completing alignment.					

• FM-IF ALIGNMENT

SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONIC VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT (Shown in Fig. 1)	REMARKS
CONNECTIONS	FREQUENCY				
Connect to test point TP1 through ceramic capacitor. Negative side to test point TP2 .	10.7 MHz (Sweep)	Point of non-interference.(on/ about 90 MHz)	Connect vert. amp. of scope to test point TP3 . Negative side to test point TP4 .	T1(FM 1st)	Waveform is shown in Fig. 3
"	"	"	"	T3(FM 2nd)	Waveform is shown in Fig. 4

• FM-RF ALIGNMENT

Connect to test point TP1 through FM dummy antenna. Negative side to test point TP2 .	86.2MHz	Variable capacitor fully closed.	Headphone Jack (32Ω) (Fabicate the plug as shown in Fig.2 and then connect the lead wires of the plug to the measuring instrument.)	L2 (FM OSC Coil)	[*2] Adjust for maximum output.
	109.2MHz	Variable capacitor fully opened.	"	CT1-2 (FM OSC Trimmer)	"
	106MHz	Tune to signal	"	CT1-1 (FM ANT Trimmer)	"
[*2] Three output response will be present; proper tuning is the center frequency.					

■ CASSETTE DECK SECTION

• ALIGNMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT
Note : No Azimuth Head Alignment is required due to Aztec Head is used in the cassette mechanism.

■ ALIGNMENT POINTS

< TUNER SECTION >

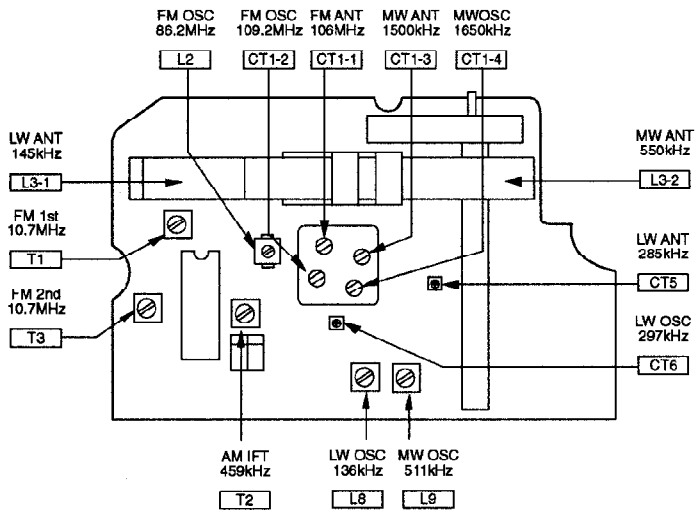


Fig. 1

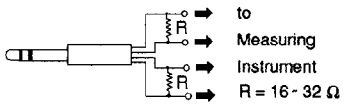


Fig. 2

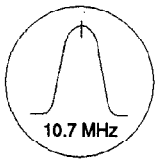


Fig.3

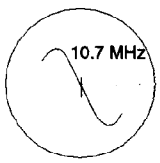


Fig. 4

■ CD PLAYER SECTION

Warning: This product uses a laser diode. Refer to caution statements on page 2.

Caution: It is very dangerous to look or touch the laser beam. (laser radiation is invisible)
With the unit turned "on", laser radiation is emitted from the pickup lens.
Avoid exposure to the laser beam, especially when performing adjustments.

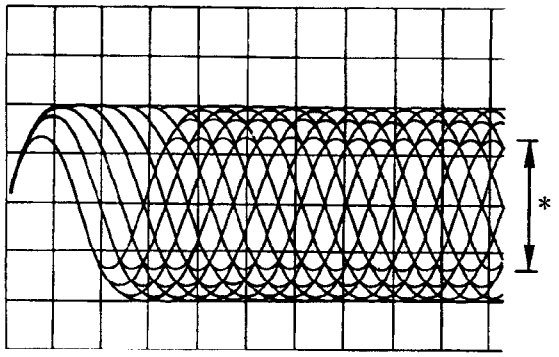
Measuring Instruments and Special Tools

* Test discs
1. Playability test disc (SZZP1054C).
2. Uneven test disc (SZZP1056C).
* Musical program disc (ordinary).
* Dual-beam oscilloscope with bandwidth of 30 MHz or better (with EXT. trigger and 1 : 1 probe).
* Allen wrench (M2.0) (SZZP1101C).
* Lock paint (RZZ0L01)

(1) MECHANICAL ADJUSTMENT

- When the traverse deck is replaced, making adjustments is not necessary. (The traverse deck ass'y is already adjusted.)
- Make adjustments to improve playability if the traverse deck has not been replaced.

1. Connect the oscilloscope's CH. 1 probe across TJ701 (RF) (+) and TJ702 (V-Ref.) (–) on the servo P.C.B.
   Oscilloscope setting : VOLT .....200mV.
   SWEEP.....0.5µs.
   Input coupling .....AC.
2. Switch the player power **ON**, and play track **19** on the test disc (SZZ1056C).
   (Playing any other track will prevent the HEX screws from being accessed.)
3. Leave the player in play mode.
4. Alternately adjust the HEX screws with the 2.0mm allen wrench (SZZP1101C) until the vertical fluctuation of RF signal is minimized and the eye pattern is most stretched. (Refer to Fig. 2 on page 32)
5. After completing the adjustment, lock the HEX screws with lock paint (RZZ0L01).



* Most stretched eye pattern

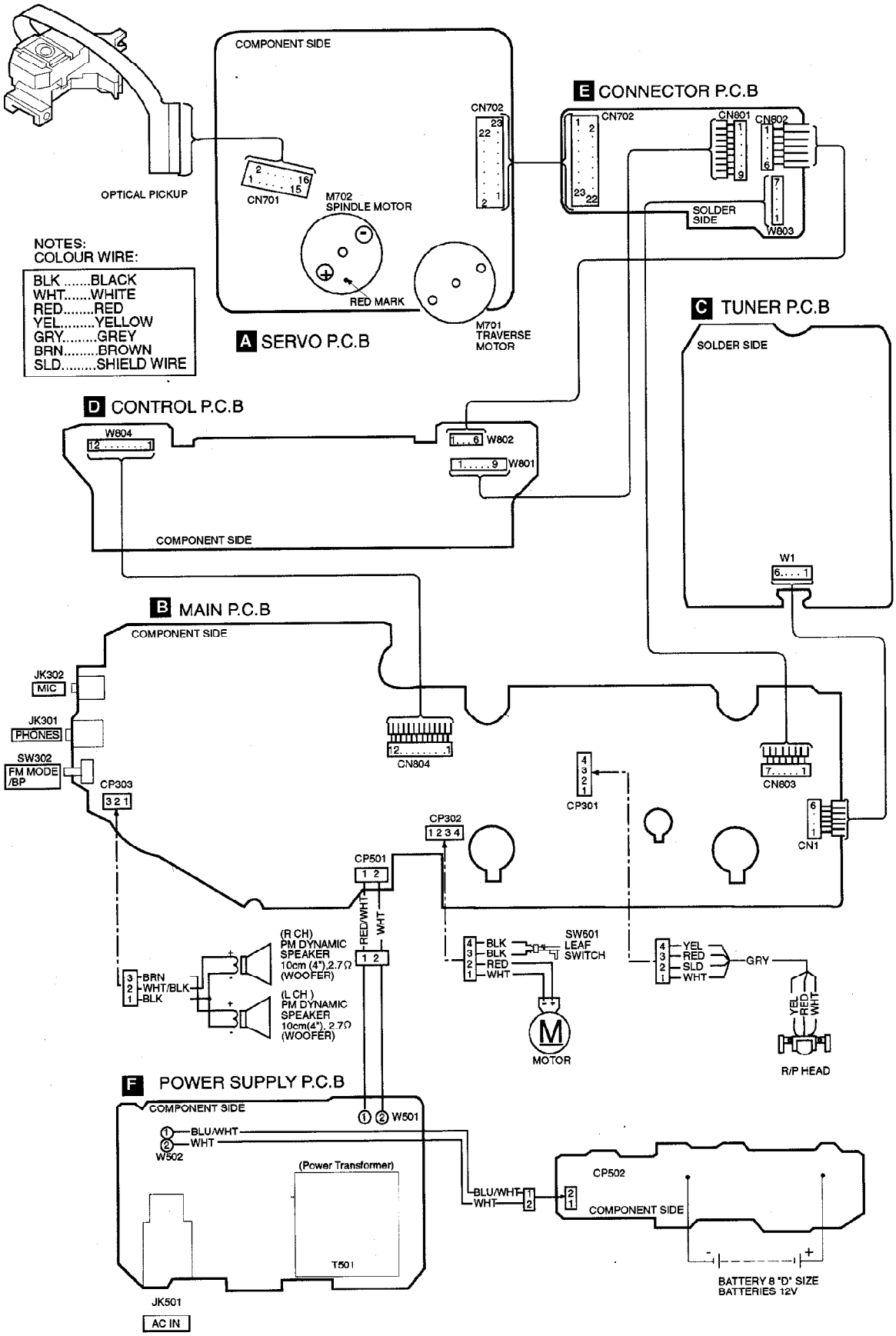
(3) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

*** Checking skip Search**
1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

*** Checking Manual Search**
1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

*** Checking Playability**
1. Play the 0.7mm black dot and the 0.7mm wedge on the test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.

■ WIRE CONNECTION DIAGRAM



■ MECHANISM PARTS LIST

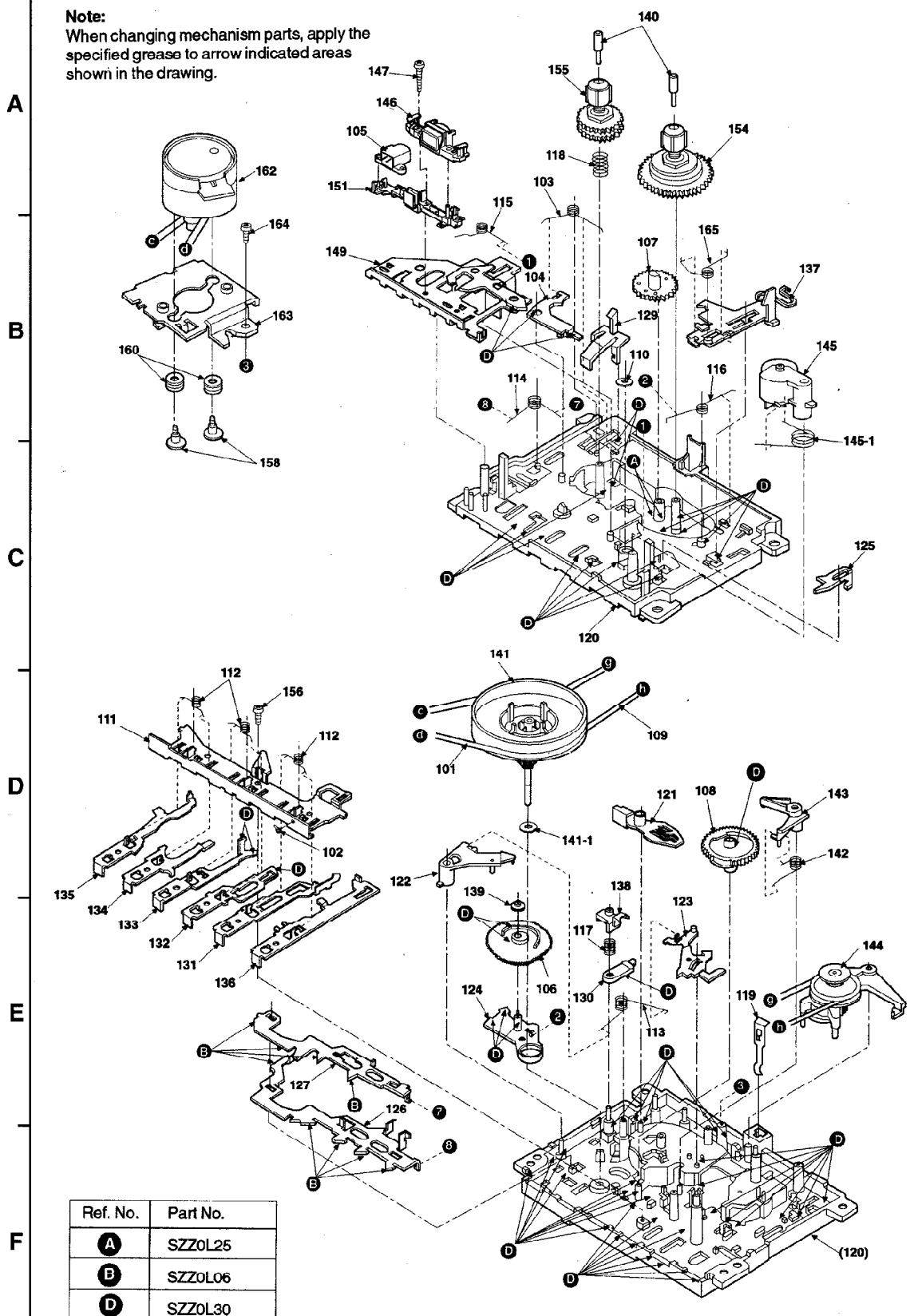
NOTES: [M] Indicates in the Remarks columns indicates parts supplied by **MESA**.

Ref No.	Part No.	Part Name & Description	Remarks
		CASSETTE MECHANISM	
101	RDV0007	MAIN BELT	[M]
102	RJR0033	EARTH LUG	[M]
103	RMB0109-1	BRAKE SPRING	[M]
104	RML0116	BRAKE	[M]
105	RBR2CY009	ERASE HEAD	[M]
106	RDG0057	IDLER GEAR	[M]
107	RDG0059	FF RELAY GEAR	[M]
108	RDK0005	CAM GEAR	[M]
109	RDV0006-1	RF BELT	[M]
110	RHW16009	CAPSTAN WASHER	[M]
111	RMA0109	BACK PLATE	[M]
112	RMB0043-1	ROD OPERATION SPRING	[M]
113	RMB0045	AS SPRING	[M]
114	RMB0046-1	LOCK PLATE SPRING	[M]
115	RMB0047	HEAD PANEL SPRING	[M]
116	RMB0048	IDLER LEVER SPRING	[M]
117	RMB0053	PAUSE LEVER SPRING	[M]
118	RMB0125	BACK TENSION SPRING	[M]
119	RMC0061	PACK SPRING	[M]
120	RFKRCT090P-K	CHASSIS ASS'Y	[M]
121	RML0071	SWING LEVER	[M]
122	RML0072	AS RELEASE LEVER	[M]
123	RML0073-1	AS PROTECT LEVER	[M]
124	RML0074	IDLER LEVER	[M]
125	RML0076	EJECT SELECTION LEVE	[M]
126	RML0077	LOCK PLATE	[M]
127	RML0078	FUNCTION PLATE	[M]
129	RML0081-1	RECORD SAFETY LEVER	[M]
130	RML0082	PAUSE LEVER	[M]
131	RMM0023	PLAY ROD	[M]
132	RMM0024	REW ROD	[M]
133	RMM0025	FF ROD	[M]
134	RMM0026	STOP ROD	[M]
135	RMM0027	PAUSE ROD	[M]
136	RMM0028	REC ROD	[M]
137	RMM0029	EJECT SLIDE LEVER	[M]
138	RMR0211	PAUSE BUSH	[M]
139	RMR0227	IDLER GEAR BUSH	[M]
140	RMS0055	REEL SHAFT	[M]
141	RXF0012	FLYWHEEL ASSY	[M]
141-1	RHW21008	FLYWHEEL WASHER	[M]
142	RMB0044	TRIGGER SPRING	[M]
143	RML0075	TRIGGER LEVER	[M]
144	RXP0014	RF CLUTCH ASSY	[M]

Ref No.	Part No.	Part Name & Description	Remarks
145	RXP0015	PINCH ROLLER ASSY	[M]
145-1	RMB0049	PINCH ARM SPRING	[M]
146	RBR4CY016-M	STEREO ASTEC HEAD	[M]
147	XTN2+12F	R/P HEAD SCREW	[M]
149	RMA0696	HEAD BASE	[M]
151	RMQ0384	HEAD BASE	[M]
154	RXR0004	TAKE UP REEL ASSY	[M]
155	RXR0005	SUPPLY REEL ASSY	[M]
156	XTN2+6J	BACK PLATE SCREW	
158	RHD26002	MOTOR SCREW	
160	RMG0102	MOTOR RUB. CUSH.	[M]
162	RFKPXDS101PK	DC MOTOR ASS'Y	[M]
163	RMA0108	MOTOR BK	[M]
164	XTN26+8J	MOTOR BK SCREW	
165	RME0098-2	EJECT SLIDE LEVER SP	[M]

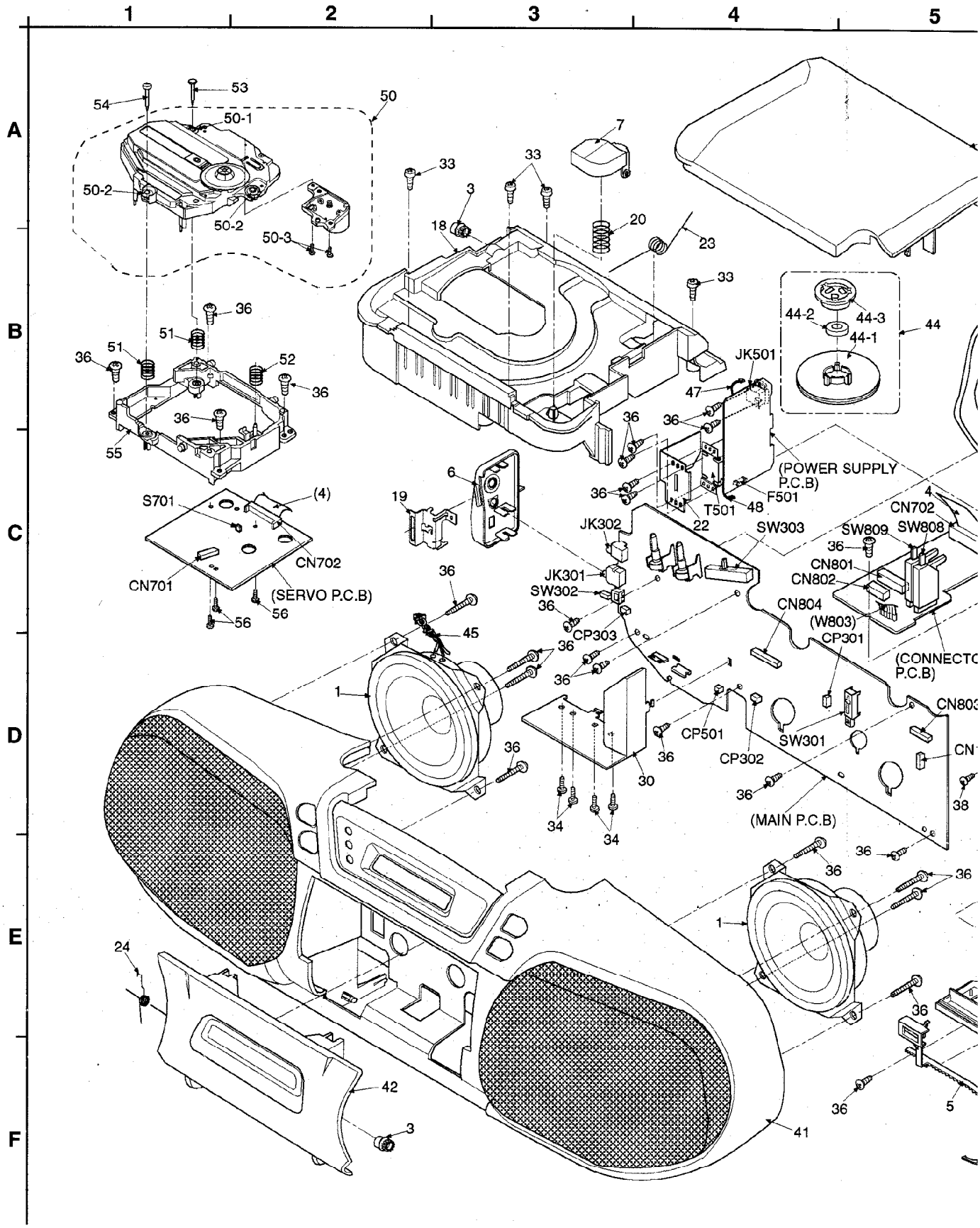
■ MECHANISM PARTS LOCATION (RAA0919)

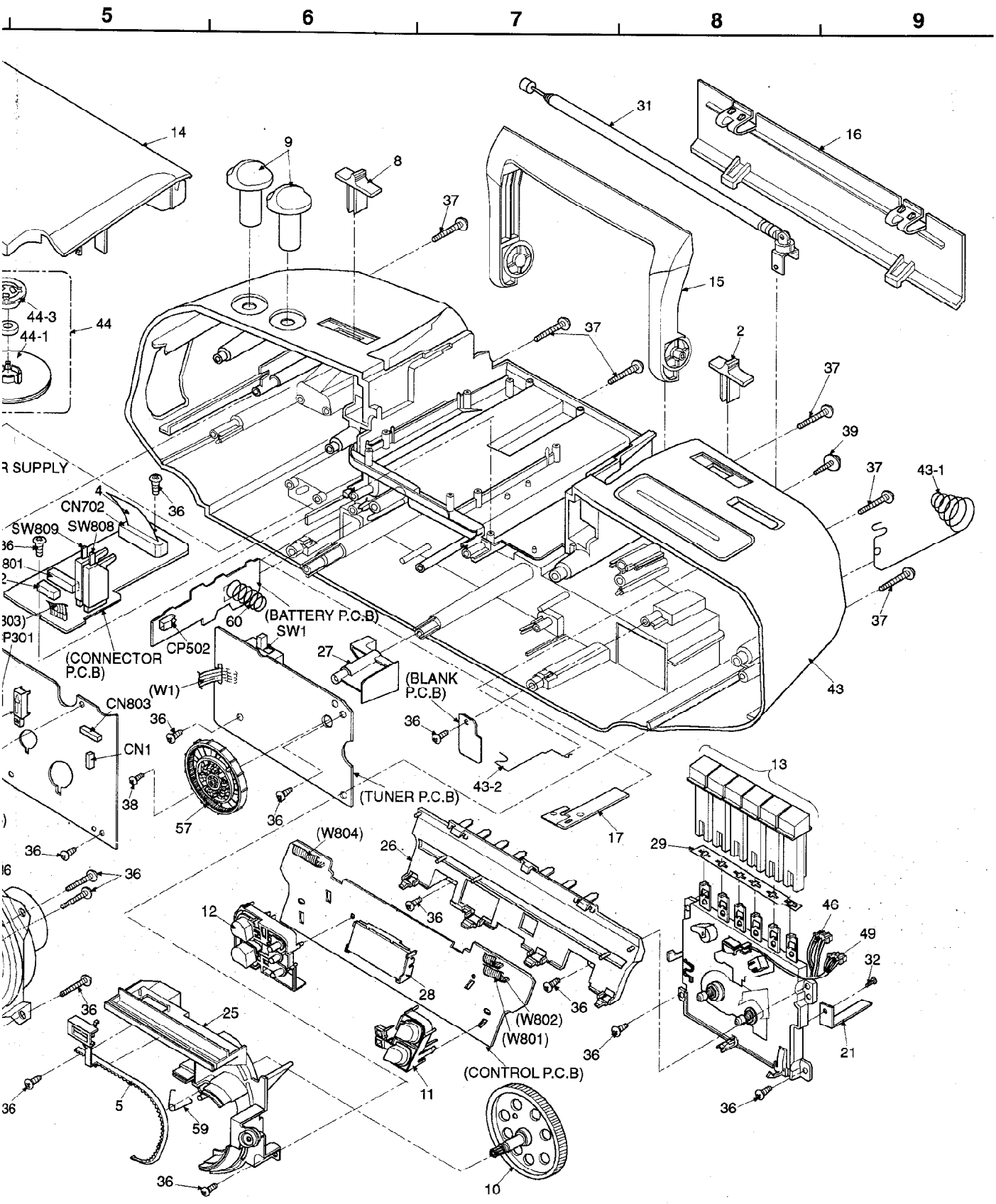
Note:
When changing mechanism parts, apply the specified grease to arrow indicated areas shown in the drawing.



Ref. No.	Part No.
A	SZZ0L25
B	SZZ0L06
D	SZZ0L30

■ CABINET PARTS LOCATION




5
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15
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43-1
37
43
44-3
44-1
44
R SUPPLY
4
CN702
36
SW809
SW808
801
303)
P301
(CONNECTOR P.C.B)
60
(BATTERY P.C.B)
SW1
CP502
27
(BLANK P.C.B)
(W1)
CN803
36
CN1
38
57
36
(TUNER P.C.B)
43-2
36
17
13
29
(W804)
26
36
12
28
46
49
32
36
(W802)
(W801)
(CONTROL P.C.B)
36
21
25
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5
59
11
36
36
10

■ REPLACEMENT PARTS LIST

Notes: * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low noise (resistors), etc are used.
When replacing any of these components, be sure to use only manufacturer's specified parts shown in the parts list.
* The parenthesized indications in the Remarks columns specify the areas or colour. (Refer to the cover page for area or colour)
Parts without these indications can be used for all areas.
* Warning : This product uses a laser diode. Refer to caution statements on page 2.
ACHTUNG : Die lasereinheit nicht zerlegen.
Die lasereinheit darf nur gegen eine vom herstellar spezifizierte einheit ausgetauscht werden.
* [M] Indicates in the Remarks columns indicates parts supplied by **MESA.**

Ref No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
1	EASG10P555A2	SPEAKER	[M]
2	RBD564ZA-W	BAND KNOB	[M] (W)
2	RBD564ZA-0	BAND KNOB	[M] (K)
3	RDG0183-L	DAMPER GEAR	[M]
4	REE0530	FFC WIRE	[M]
5	RGJ0014-W	POINTER	[M]
6	RGQ0126B-K	JACK COVER	[M] (K)
6	RGQ0126B-W	JACK COVER	[M] (W)
7	RGU0977-K	CD EJECT BUTTON	[M] (K)
7	RGU0977-W	CD EJECT BUTTON	[M] (W)
8	RGV0126-K	FUNCTION KNOB	[M] (K)
8	RGV0126-W	FUNCTION KNOB	[M] (W)
9	RGW0186-KJ	VOL. KNOB	[M] (K)
9	RGW0186-WJ	VOL. KNOB	[M] (W)
10	RGW0190-K	TUN. KNOB	[M] (K)
10	RGW0190-W	TUN. KNOB	[M] (W)
11	RGZ0019A-K	OPE. BUTTON (A)	[M] (K)
11	RGZ0019A-W	OPE. BUTTON (A)	[M] (W)
12	RGZ0020-K	OPE. BUTTON (B)	[M] (K)
12	RGZ0020-W	OPE. BUTTON (B)	[M] (W)
13	RGZ0021-K	MECHA BUTTON	[M]
14	RKF0347-K	CD LID	[M] (K)
14	RKF0347-W	CD LID	[M] (W)
15	RKH0021-K	HANDLE	[M] (K)
15	RKH0021-W	HANDLE	[M] (W)
16	RKK347ZB-W	BATT. COVER	[M] (W)
16	RKK347ZB-0	BATT. COVER	[M] (K)
17	RKQ0157-K	AC FUSE COVER	[M] (K)
17	RKQ0157-W	AC FUSE COVER	[M] (W)
18	RFKKRXDS15PK	TOP CAB. ASS'Y	[M] (K)
18	RFKKXDS15EW	TOP CAB. ASS'Y	[M] (W)
19	RMA0749	JACK HOLDER	[M]
20	RMB0244	CD BUTTON SPRING	[M]
21	RMC0076	R/P SPRING	[M]
22	RMC0233	SHIELD PLATE	[M]
23	RME0147	CD OPEN SPRING	[M]
24	RME0148	CASS. OPEN SPRING	[M]
25	RMK0225	DIAL CHASSIS	[M]
26	RMK0226	PCB HOLD CHASSIS	[M]
27	RMI.0322	REC LEVER	[M]
28	RMN0242	LCD HOLDER	[M]
29	RMX0045	SPACER	[M]
30	RMY0128	HEAT SINK	[M]
31	XEARR175ED-Y	ROD ANTENNA	
32	XTN2+3F	SCREW	
33	XTN3+10CFZ	TOP CAB. SCREWS	
34	XTV3+10F	HEAT SINK SCREW	
36	XTV3+12G	SCREWS	
37	XTV3+20G	CASING SCREWS	
38	XYN26+C6	SCREW	
39	XYN3+F8FY	ROD ANT. SCREW	
41	RFKGRXDS15P1	FRONT CAB. ASS'Y	[M] (K)
41	RFKGXDS15EW	FRONT CAB. ASS'Y	[M] (W)
42	RFKLRXDS15PK	CASS. HOLDER ASS'Y	[M] (K)
42	RFKLXDS15EW	CASS. HOLDER ASS'Y	[M] (W)
43	RFKHXDS15EK	BACK CAB. ASS'Y	[M] (E-K)
43	RFKHXDS15EW	BACK CAB. ASS'Y	[M] (E-W)
43	RFKHXDS15EBK	BACK CAB. ASS'Y	[M] (EB)
43	RFKHXDS15EGK	BACK CAB. ASS'Y	[M] (EG)
43-1	RJC931YA	BATT. TERMINAL	[M]
43-2	RJR0117	ANT. TERMINAL	[M]
44	RFKNRXDS15PA	DISC HOLDER ASS'Y	[M]
44-1	RFKNXDS55N-K	HOLDER ASS'Y	
44-2	RIIM245ZA	MAGNET	
44-3	RMQ0152-E	MAGNET HOLDER	[M]
45	REX0569	SP. CONNECT WIRE	[M] (K)
45	REX0611	SP. CONNECT WIRE	[M] (W)
46	REX0570	MECHA MOTOR WIRE	[M]
47	REX0571	BATTERY WIRE	[M]
48	REX0572	POWER SUPPLY WIRE	[M]
49	REX0596	MECHA HEAD WIRE	[M]
50	RAE0113Z	TRAVERSE UNIT	
50-1	SHGD112	FLOATING RUBBER (A)	
50-2	SHGD113-1	FLOATING RUBBER (B)	
50-3	XQS2+A35FZ	SCREW	
51	RME0109	FLOATING SPRING A	
52	RME0142	FLOATING SPRING B	
53	RMS0123-1	FIXED PIN A	

Ref No.	Part No.	Part Name & Description	Remarks
54	RMS0350	FIXED PIN B	
55	RMR0698-K	TRAVERSE CHASSIS	
56	XTV2+6G	SCREW	
57	RDG0253-L	VARICON GEAR	[M]
59	RUW214ZA	LOCK SPRING	[M]
60	RJC511YA	BATTERY TERMINAL	[M]
		INTEGRATED CIRCUITS	
IC1	AN7205	IC, RF	
IC2	BA1442	IC, MPX / IF	[M]
IC301	AN7317	IC, REC/PLAY AMP	[M]
IC302	AN7135	IC, POWER	
IC303	BA3936	IC, REGULATOR	⚠
IC801	M38222M2051	IC, CD CONTROL MICOM	[M]
IC802	S-806D-Z	IC, RESET	[M]
		TRANSISTORS	
Q1	2SC829BTA	TRANSISTOR	
Q101	2SC2785FTA	TRANSISTOR	
Q102	2SC2785FTA	TRANSISTOR	
Q103	2SC1684RTA	TRANSISTOR	
Q201	2SC2785FTA	TRANSISTOR	
Q202	2SC2785FTA	TRANSISTOR	
Q203	2SC1684RTA	TRANSISTOR	
Q301	2SC2785FTA	TRANSISTOR	
Q302	2SC1740SRTA	TRANSISTOR	
Q303	2SC1740SRTA	TRANSISTOR	
Q304	2SC1684STA	TRANSISTOR	
Q306	BN1A4MTA	TRANSISTOR	[M]
Q308	2SC2785FTA	TRANSISTOR	
Q309	2SC2785FTA	TRANSISTOR	
Q311	2SC4408TPE6	TRANSISTOR	[M]
		DIODES	
D1	RVD1SS133TA	DIODE	
D2	RVD1SS133TA	DIODE	
D303	RVDMTZ6R8BTA	DIODE	
D307	RVD1SS133TA	DIODE	
D308	RVD1SS133TA	DIODE	
D310	MA4056N-MTA	DIODE	[M]
D312	RVDMTZ16BTA	DIODE	[M]
D313	RVDMTZ5R6BTA	DIODE	
D501	1N5402BM21	DIODE	⚠
D502	1N5402BM21	DIODE	⚠
D503	1N5402BM21	DIODE	⚠

Ref No.	Part No.	Part Name & Description	Remarks
D504	1N5402BM21	DIODE	⚠
D802	RVD1SS133TA	DIODE	
D803	SLB55VRF35	DIODE	[M]
D804	SLB55VRF35	DIODE	[M]
		VARIABLE RESISTORS	
VR301	EWCU1AF20B54	VR, VOLUME	[M]
VR302	EWCU0AF20C54	VR, XBS	[M]
		VARIABLE CAPACITORS	
VC1	RCV4RC2V2K-M	TRIMMER	
CT5	ECRLA030E53R	LW ANT TRIMMER	
CT6	ECRLA020E53R	LW OSC TRIMMER	
		SWITCHES	
SW1	RSS3H001-H	SW, BAND	[M]
SW301	RSP2F001-1A	SW, REC	[M]
SW302	RSS3B31ZA-H	SW, FM MODE/BPF.	[M]
SW303	RSS3D001-H	SW, FUNCTION	[M]
SW501	RJJ1SE01-H	SW, AC IN (JK501)	⚠
SW601	RSH1A006-U	SW, MOTOR	[M]
SW801	EVQ21405R	SW, REPEAT	
SW802	EVQ21405R	SW, MEMORY	
SW803	EVQ21405R	SW, FF	
SW804	EVQ21405R	SW, REV	
SW805	EVQ21405R	SW, EASY CD REC	
SW806	EVQ21405R	SW, PLAY/PAUSE	
SW807	EVQ21405R	SW, STOP/CLEAR	
SW808	RSH1A012-U	SW, CD OPEN/CLOSE	
SW809	RSH1A012-U	SW, CD LOAD	
		CONNECTORS	
CN1	RJS1A5206	CONNECTOR (6P)	[M]
CN702	RJS1A6823	FFC SOCKET (23P)	
CN801	RJS1A5209	CONNECTOR (9P)	[M]
CN802	RJS1A5206	CONNECTOR (6P)	[M]
CN803	RJS1A5207	CONNECTOR (7P)	
CN804	RJS1A5212	CONNECTOR (12P)	[M]
CP301	RJP4G18ZA	CONNECTOR (4P)	
CP302	RJP4G18ZA	CONNECTOR (4P)	
CP303	RJP3G4YA	CONNECTOR (3P)	
CP501	RJP2G4YA	CONNECTOR (2P)	
CP502	RJP2G9YA	CONNECTOR (2P)	

Ref No.	Part No.	Part Name & Description	Remarks
		COILS & TRANSFORMERS	
L1	RLQY30S1W	COIL	[M]
L2	RL04P002-E	FM OSC COIL	[M]
L3	RLV6C009-0	AM FERRITE ANT	[M]
L8	RL01B13-M	LW OSC COIL	
L9	RL02B108-M	AM OSC COIL	
L301	RL09B17-T	REC BIAS OSC COIL	
L501	RLL500050T-Y	COIL	⚠
L502	RLL500050T-Y	COIL	⚠
T1	RLI4B153-M	FM IFT	
T2	RLI2B153-M	AM IFT	
T3	RLI4B153-M	FM IFT	
T501	RTP1U1B002-X	POWER TRANSFORMER	[M] ⚠
		DISPLAY	
Z801	RSL5098-L	LCD	[M]
		CERAMIC FILTERS	
CF1	RVF107WDZT	FM CF	
CF2	RVFSFZ459JL	AM CF	[M]
		OSCILLATOR	
X801	RSXY4M19M03T	CERAMIC RESISTOR	[M]
		FUSE	
F501	XBA2C20TB0	FUSE	⚠
		FUSE HOLDERS	
FH501	EYF52BC	FUSE HOLDER	
FH502	EYF52BC	FUSE HOLDER	
		JACKS	
JK301	RJJ37TK01-C	JK, HP	[M]
JK302	RJJ1D25ZA-C	JK, MIC	
JK501	RJJ1SE01-II	JK, AC	⚠
		< SERVO >	
		INTEGRATED CIRCUITS	
IC701	AN8802SCE1V	IC, HEAD AMP	
IC702	MN66271RA	IC, DIGITAL LSI	

Ref No.	Part No.	Part Name & Description	Remarks
IC703	AN8389SE1	IC, 4-CH DRIVER	
		TRANSISTOR	
Q701	2SB709S	TRANSISTOR	
		SWITCH	
S701	RSM0006-P	SW, RESET	
		CONNECTORS	
CN701	RJU035T016-1	CONNECTOR (16P)	
CN702	RJS1A6723-1Q	CONNECTOR (23P)	
		OSCILLATOR	
X701	RSXZ16M9M02T	CERAMIC OSC	
		CHIP JUMPERS	
RJ701	ERJ8GEY0R00A	0 1/10W	
RJ702	ERJ8GEY0R00A	0 1/10W	
RJ703	ERJ8GEY0R00A	0 1/10W	
RJ704	ERJ8GEY0R00A	0 1/10W	
RJ707	ERJ8GEY0R00A	0 1/10W	
RJ708	ERJ8GEY0R00A	0 1/10W	
RJ709	ERJ8GEY0R00A	0 1/10W	
RJ714	ERJ8GEY0R00A	0 1/10W	
RJ715	ERJ8GEY0R00A	0 1/10W	
RJ716	ERJ8GEY0R00A	0 1/10W	
RJ717	ERJ8GEY0R00A	0 1/10W	
RJ721	ERJ6GEY0R00A	0 1/10W	
RJ724	ERJ6GEY0R00A	0 1/10W	
RJ725	ERJ6GEY0R00A	0 1/10W	
RJ726	ERJ6GEY0R00A	0 1/10W	
RJ799	ERJ6GEY0R00A	0 1/10W	
		TEST JUMPERS	
TJ701	EYF8CU	TEST JUMPER	
TJ702	EYF8CU	TEST JUMPER	

■ RESISTORS & CAPACITORS

Notes :
* Capacitor values are in microfarads (μF) unless specified otherwise, P=Pico-farads (pF), F=Farads.
* Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM).
* Bracketed indications in Ref. No. columns specify the area (Refer to the first page for area). Parts without these indications can be used for all areas.
* [M] Indicates in the values & remarks column indicates parts supplied by **MESA**

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R1	ERDS2TJ330T	33 1/4W
R2	ERDS2TJ334T	330K 1/4W
R3	ERDS2TJ471T	470 1/4W
R4	ERDS2TJ330T	33 1/4W
R5	ERDS2TJ101T	100 1/4W
R6	ERDS2TJ8R2T	8.2 1/4W
R7	ERDS2TJ470T	47 1/4W
R8	ERDS2TJ680T	68 1/4W
R10	ERDS2TJ103T	10K 1/4W
R11	ERDS2TJ221T	220 1/4W
R12	ERDS2TJ332T	3.3K 1/4W
R14	ERDS2TJ103T	10K 1/4W
R101	ERDS2TJ183T	18K 1/4W
R102	ERDS2TJ472T	4.7K 1/4W
R103	ERDS2TJ470T	47 1/4W
R104	ERDS2TJ822T	8.2K 1/4W
R105	ERDS2TJ563T	56K 1/4W
R106	ERDS2TJ273T	27K 1/4W
R107	ERDS2TJ153T	15K 1/4W
R108	ERDS2TJ104T	100K 1/4W
R110	ERDS2TJ273T	27K 1/4W
R111	ERDS2TJ153T	15K 1/4W
R114	ERDS2TJ153T	15K 1/4W
R115	ERDS2TJ124T	120K 1/4W
R116	ERDS2TJ333T	33K 1/4W
R118	ERDS2TJ103T	10K 1/4W
R119	ERDS2TJ473T	47K 1/4W
R120	ERDS2TJ105T	1M 1/4W
R121	ERDS2TJ103T	10K 1/4W
R122	ERDS2TJ562T	5.6K 1/4W
R123	ERDS2TJ823T	82K 1/4W
R125	ERDS2TJ103T	10K 1/4W
R126	ERDS2TJ104T	100K 1/4W
R127	ERDS2TJ391T	390 1/4W
R128	ERDS2TJ682T	6.8K 1/4W
R129	ERDS2TJ332T	3.3K 1/4W
R134	ERDS2TJ2R7T	2.7 1/4W
R135	ERDS2TJ121T	120 1/4W
R201	ERDS2TJ183T	18K 1/4W
R202	ERDS2TJ472T	4.7K 1/4W
R203	ERDS2TJ470T	47 1/4W
R204	ERDS2TJ822T	8.2K 1/4W
R205	ERDS2TJ563T	56K 1/4W
R206	ERDS2TJ273T	27K 1/4W
R207	ERDS2TJ153T	15K 1/4W
R208	ERDS2TJ104T	100K 1/4W
R210	ERDS2TJ273T	27K 1/4W
R211	ERDS2TJ153T	15K 1/4W
R214	ERDS2TJ153T	15K 1/4W
R215	ERDS2TJ124T	120K 1/4W
R216	ERDS2TJ333T	33K 1/4W
R218	ERDS2TJ103T	10K 1/4W
R219	ERDS2TJ473T	47K 1/4W
R220	ERDS2TJ105T	1M 1/4W
R221	ERDS2TJ103T	10K 1/4W
R222	ERDS2TJ562T	5.6K 1/4W
R223	ERDS2TJ823T	82K 1/4W
R225	ERDS2TJ103T	10K 1/4W
R226	ERDS2TJ104T	100K 1/4W
R227	ERDS2TJ391T	390 1/4W
R228	ERDS2TJ682T	6.8K 1/4W
R229	ERDS2TJ332T	3.3K 1/4W
R234	ERDS2TJ2R7T	2.7 1/4W
R235	ERDS2TJ121T	120 1/4W
R301	ERDS2TJ473T	47K 1/4W
R302	ERDS2TJ473T	47K 1/4W
R303	ERDS2TJ472T	4.7K 1/4W
R304	ERDS2TJ681T	680 1/4W
R305	ERDS2TJ221T	220 1/4W
R306	ERDS2TJ563T	56K 1/4W
R307	ERDS2TJ100T	10 1/4W
R309	ERDS2TJ104T	100K 1/4W
R310	ERDS2TJ104T	100K 1/4W
R311	ERDS2TJ101T	100 1/4W
R312	ERDS2TJ222T	2.2K 1/4W
R313	ERDS2TJ105T	1M 1/4W
R314	ERDS2TJ470T	47 1/4W
R315	ERDS2TJ332T	3.3K 1/4W
R316	ERDS2TJ101T	100 1/4W
R317	ERDS2TJ101T	100 1/4W
R318	ERDS2TJ473T	47K 1/4W
R319	ERDS2TJ472T	4.7K 1/4W
R320	ERDS2TJ823T	82K 1/4W
R321	ERDS2TJ122T	1.2K 1/4W
R324	ERDS2TJ103T	10K 1/4W
R325	ERDS2TJ103T	10K 1/4W
R327	ERDS2TJ151T	150 1/4W
R328	ERDS2TJ101T	100 1/4W
R329	ERDS2TJ223T	22K 1/4W
R330	ERDS2TJ821T	820 1/4W
R331	ERDS2TJ822T	8.2K 1/4W
R332	ERDS2TJ821T	820 1/4W
R333	ERDS2TJ101T	100 1/4W
R334	ERDS2TJ102T	1K 1/4W
R337	ERDS2TJ106T	10M 1/4W
R339	ERDS2TJ123T	12K 1/4W
R340	ERDS2TJ332T	3.3K 1/4W
R501	ERDS2TJ272T	2.7K 1/4W
R801	ERDS2TJ822T	8.2K 1/4W
R802	ERDS2TJ562T	5.6K 1/4W
R803	ERDS2TJ392T	3.9K 1/4W
R804	ERDS2TJ272T	2.7K 1/4W
R805	ERDS2TJ222T	2.2K 1/4W
R806	ERDS2TJ152T	1.5K 1/4W
R807	ERDS2TJ153T	15K 1/4W
R808	ERDS2TJ472T	4.7K 1/4W
R809	ERDS2TJ104T	100K 1/4W
R810	ERDS2TJ104T	100K 1/4W
R811	ERDS2TJ104T	100K 1/4W
R812	ERDS2TJ183T	18K 1/4W
R813	ERDS2TJ273T	27K 1/4W
R814	ERDS2TJ104T	100K 1/4W
R815	ERDS2TJ474T	470K 1/4W
R816	ERDS2TJ563T	56K 1/4W
R817	ERDS2TJ103T	10K 1/4W
R818	ERDS2TJ563T	56K 1/4W
R819	ERDS2TJ151T	150 1/4W
R820	ERDS2TJ151T	150 1/4W
R821	ERDS2TJ151T	150 1/4W
R822	ERDS2TJ680T	68 1/4W
		CAPACITORS
C2	ECBT1H470J5	47P 50V
C3	ECBT1H180JC5	18P 50V
C4	ECBT1H100J5	10P 50V
C5	ECBT1H102KB5	1000P 50V
C6	ECBT1H102KB5	1000P 50V
C7	ECBT1H4R7KC5	4.7P 50V
C8	ECBT1H150J5	15P 50V
C9	ECBT1H102KB5	1000P 50V
C10	ECBT1H120J5	12P 50V
C11	ECBT1H220JC5	22P 50V (E, EB)
C11	ECCR1H220JC5	22P 50V (EG)
C12	ECBT0J223MS5	0.022 6.3V
C13	ECBT0J223MS5	0.022 6.3V
C14	ECBT1H221KB5	220P 50V
C15	ECEA1HU010B	1 50V
C16	ECBT1C682MR5	6800P 16V

Ref. No.	Part No.	Values & Remarks
C17	ECEA1EU100B	10 25V
C18	ECEA1CU470B	47 16V
C19	ECBT0J223MS5	0.022 6.3V
C20	ECEA0JU101B	100 6.3V
C21	ECBT1H102KB5	1000P 50V
C22	ECFR1C473MR	0.047 16V
C23	ECEA1HUR22B	0.22 50V
C24	ECEA1EU100B	10 25V
C25	ECBT1C103MS5	0.01 16V
C26	ECBT0J223MS5	0.022 6.3V
C27	ECBT1H102KB5	1000P 50V
C28	ECEA1HU010B	1 50V
C29	ECEA1HU010B	1 50V
C30	ECBT1H470J5	47P 50V
C33	ECBT0J223MS5	0.022 6.3V
C34	ECBT1H150JC5	15P 50V (E, EB)
C34	ECBT1H180JC5	18P 50V (EG)
C36	ECQP2A221JZT	220P 100V
C37	ECQP2A361JZT	360P 100V
C39	ECQP2A151JZT	150P 100V
C40	ECBT1C103NS5	0.01 16V
C52	ECBT1H330J5	33P 50V
C53	ECBT1H102KB5	1000P 50V
C101	ECBT1C122MR5	1200P 16V
C102	ECBT1H102KB5	1000P 50V
C103	ECEA0JU101B	100 6.3V
C104	ECFR1C273MR	0.027 16V
C105	ECEA1HU010B	1 50V
C106	ECBT1H101KB5	100P 50V
C107	ECEA1CU100B	10 16V
C108	ECBT1H102KB5	1000P 50V
C109	ECFR1C123MR	0.012 16V
C110	ECEA1HKA010B	1 50V
C111	ECBT1H471KB5	470P 50V
C112	ECEA1HU010B	1 50V
C113	ECEA1HUR33B	0.33 50V
C115	ECEA1HUR33B	0.33 50V
C116	ECEA1HKA010B	1 50V
C120	ECEA1AU101B	100 10V
C122	ECBT1H471KB5	470P 50V
C123	ECEA1AU470B	47 10V
C124	ECEA1AU102B	1000 10V
C125	ECFR1C104MR	0.1 16V
C126	ECEA1HU010B	1 50V
C201	ECBT1C122MR5	1200P 16V
C202	ECBT1H102KB5	1000P 50V
C203	ECEA0JU101B	100 6.3V
C204	ECFR1C273MR	0.027 16V
C205	ECEA1HU010B	1 50V
C206	ECBT1H101KB5	100P 50V
C207	ECEA1CU100B	10 16V
C208	ECBT1H102KB5	1000P 50V
C209	ECFR1C123MR	0.012 16V
C210	ECEA1HKA010B	1 50V

Ref. No.	Part No.	Values & Remarks
C211	ECBT1H471KB5	470P 50V
C212	ECEA1HU010B	1 50V
C213	ECEA1HUR33B	0.33 50V
C215	ECEA1HUR33B	0.33 50V
C216	ECEA1HKA010B	1 50V
C220	ECEA1AU101B	100 10V
C222	ECBT1H471KB5	470P 50V
C223	ECEA1AU470B	47 10V
C224	ECEA1AU102B	1000 10V
C225	ECFR1C104MR	0.1 16V
C226	ECEA1HU010B	1 50V
C301	ECBT1C103MS5	0.01 16V
C302	ECQP2A151JZT	150P 100V
C303	ECBT1C103MS5	0.01 16V
C304	ECQP2A331JZT	330P 100V
C305	ECQB1H122JF3	1200P 50V
C306	ECEA1AU101B	100 10V
C307	ECBT1C103MS5	0.01 16V
C309	ECBT1C103MS5	0.01 16V
C310	ECEA1EU4R7B	4.7 25V
C311	ECFR1C473MR	0.047 16V
C312	ECEA1AU220B	22 10V
C313	ECEA1AU101B	100 10V
C314	ECFR1C223MR	0.022 16V
C315	ECFR1C683MR	0.068 16V
C316	ECBT1H102KB5	1000P 50V
C317	ECBT1H102KB5	1000P 50V
C318	ECEA1HU010B	1 50V
C319	ECEA1AU101B	100 10V
C320	ECEA1AU471B	470 10V
C322	ECEA1HU010B	1 50V
C323	ECEA1EU331E	330 25V
C324	ECEA0JU101B	100 6.3V
C325	ECEA1EU470B	47 25V
C327	ECEA1EU470B	47 25V
C329	ECEA1AU221B	220 10V
C330	ECEA1EU101B	100 25V
C332	ECEA1AU101B	100 10V
C335	ECEA1EU4R7B	4.7 25V
C337	ECEA1AU471B	470 10V
C338	ECA1EM332BV	3300P 25V [M]
C339	ECEA1EU471B	470 25V
C501	ECQB1H104JF3	0.1 50V
C502	ECQB1H104JF3	0.1 50V
C503	ECQB1H104JF3	0.1 50V
C504	ECQB1H104JF3	0.1 50V
C801	ECEA0JKA221B	220 6.3V
C802	ECBT1H102KB5	1000P 50V
C803	ECBT1H102KB5	1000P 50V
C804	ECEA1HU010B	1 50V
C805	ECBT1H331KB5	330P 50V
C806	ECBT1H331KB5	330P 50V
C807	ECBT1H102KB5	1000P 50V
C808	ECBT1H102KB5	1000P 50V

Ref. No.	Part No.	Values & Remarks
C809	ECBT1H102KB5	1000P 50V
C810	ECBT1H102KB5	1000P 50V
C811	ECBT1H331KB5	330P 50V
C812	ECBT1H102KB5	1000P 50V
C813	ECBT1H102KB5	1000P 50V
C814	ECBT1H102KB5	1000P 50V
C815	ECBT1H102KB5	1000P 50V
C816	ECBT1H102KB5	1000P 50V
C817	ECBT1H102KB5	1000P 50V
C818	ECBT1H102KB5	1000P 50V
		< SERVO >
		RESISTORS
R701	ERJ6GEYJ100	10 1/10W
R702	ERJ6GEYJ471V	470 1/10W
R703	ERJ6GEYJ823	82K 1/10W
R704	ERJ6GEYJ102A	1K 1/10W
R705	ERJ6GEYJ103V	10K 1/10W
R706	ERJ6GEYJ102A	1K 1/10W
R707	ERJ6GEYJ473V	47K 1/10W
R708	ERJ6GEYJ104V	100K 1/10W
R709	ERJ6GEYJ683V	68K 1/10W
R711	ERJ6GEYJ154V	150K 1/10W
R712	ERJ6GEYJ221V	220 1/10W
R714	ERJ6GEY0R00A	0 1/10W
R717	ERJ6GEYJ102A	1K 1/10W
R718	ERJ6GEYJ102A	1K 1/10W
R719	ERJ6GEYJ102A	1K 1/10W
R720	ERJ6GEYJ102A	1K 1/10W
R721	ERJ6GEYJ101V	100 1/10W
R722	ERJ6GEYJ563V	56K 1/10W
R723	ERJ6GEYJ182V	1.8K 1/10W
R724	ERJ6GEYJ333V	33K 1/10W
R725	ERJ6GEYJ472V	4.7K 1/10W
R726	ERJ6GEYJ473V	47K 1/10W
R727	ERJ6GEYJ103V	10K 1/10W
R728	ERJ6GEYJ392V	3.9K 1/10W
R730	ERJ6GEYJ331V	330 1/10W
R731	ERJ6GEYJ392V	3.9K 1/10W
R734	ERJ6GEYJ101V	100 1/10W
R735	ERJ6GEYJ101V	100 1/10W
R736	ERJ6GEYJ101V	100 1/10W
R738	ERJ6GEYJ223V	22K 1/10W
R739	ERJ6GEYJ681V	680 1/10W
R741	ERJ6GEYJ562V	5.6K 1/10W
R742	ERJ6GEYJ562V	5.6K 1/10W
R743	ERJ6GEYJ562V	5.6K 1/10W
R744	ERJ6GEYJ103V	10K 1/10W
R745	ERJ6GEYJ155V	1.5M 1/10W
R748	ERJ6GEYJ182V	1.8K 1/10W
R749	ERJ8GEYJ103V	10K 1/8W

Ref. No.	Part No.	Values & Remarks
		CAPACITORS
C701	ECEA0JKA220	22 6.3V
C702	ECEA1HKA010I	1 50V
C703	ECEA0JKA101I	100 6.3V
C704	ECUZ1E104MBN	0.1 25V
C705	ECEA1HKA010I	1 50V
C706	ECUE1H101JCN	100P 50V
C707	ECUV1E273KBN	0.027 25V
C708	ECUE1H472KBN	4700P 50V
C709	ECUE1C473KBN	0.047 16V
C710	ECUE1H152KBN	1500P 50V
C711	ECUZ1E104MBN	0.1 25V
C712	ECUZ1E104MBN	0.1 25V
C713	ECUV1C104MBM	0.1 16V

Ref. No.	Part No.	Values & Remarks
C714	ECEA0JKA101I	100 6.3V
C715	ECEA0JKA470I	47 6.3V
C716	ECUE1H561KBN	560P 50V
C717	ECUZ1E104MBN	0.1 25V
C718	ECUV1C224KBM	0.22 16V
C721	ECUE1H270JCN	27P 50V
C722	ECUE1H270JCN	27P 50V
C723	ECEA1AKA221I	220 10V
C724	ECUV1C104MBM	0.1 16V
C725	ECUE1H102KBN	1000P 50V
C726	ECUE1H102KBN	1000P 50V
C727	ECEA1HPK010I	1 50V
C728	ECEA1HPK010I	1 50V
C730	ECUZ1E104MBN	0.1 25V
C731	ECEA0JK221I	220 6.3V

Ref. No.	Part No.	Values & Remarks
C732	ECEA0JK221I	220 6.3V
C733	ECUZ1E104MBN	0.1 25V
C734	ECEA1AKA221I	220 10V
C735	ECUZNE104MBN	0.1 25V
C736	ECUZNE104MBN	0.1 25V
C737	ECUZNE104MBN	0.1 25V
C738	ECUV1C154KBN	0.15 16V
C742	ECUV1E273KBN	0.027 25V
C743	ECUZNE104MBN	0.1 25V
C744	ECUE1E822KBN	8200P 25V
C745	ECUE1C473MBN	0.047 16V
C746	ECUE1H050DCN	5P 50V
C747	ECUE1H222KBN	2200P 50V
C748	ECUV1H471KBM	470P 50V

■ PACKING MATERIALS & ACCESSORIES

Notes: * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low noise (resistors), etc are used.
When replacing any of these components, be sure to use only manufacturer's specified parts shown in the parts list.
* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area)
Parts without these indications can be used for all areas.
* The "(SF)" mark denotes the standard part.
* [M] Indicates in the Remarks columns indicates parts supplied by **MESA.**

Ref No.	Part No.	Part Name & Description	Remarks
		PACKING MATERIALS	
P1	RPF0118	MIRAMAT BAG	[M]
P2	RPG1966	GIFT BOX	[M] (E-K)
P2	RPG1967	GIFT BOX	[M] (EG)
P2	RPG1968	GIFT BOX	[M] (EB)
P2	RPG2089	GIFT BOX	[M] (E-W)
P3	RPN0757	POLYFOAM (SET)	[M]
		ACCESSORIES	
A1	RFKSXDS15EK	INSTR MNL ASS'Y	[M] (E)
A1	RQT2287-E	INSTRUCTION MANUAL	[M] (EG)
A1	RQT2288-B	INSTRUCTION MANUAL	[M] (EB)
A2	RJA0019-2K	AC CORD	(SF) (E, EG) ⚠
A2	VJA0733	AC CORD	(SF) (EB) ⚠

Ref No.	Part No.	Part Name & Description	Remarks

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